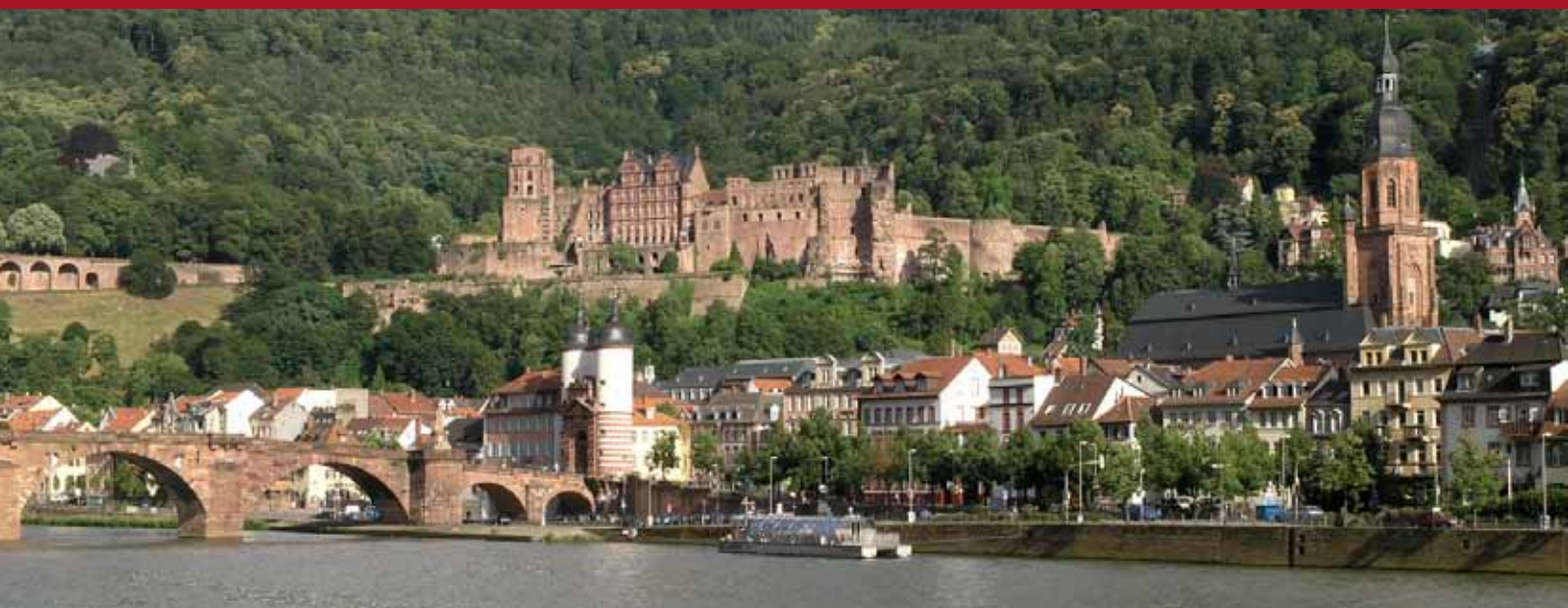Medizinische Fakultät Heidelberg

Research in Medical Education Chances and Challenges

International Conference May 20-22, 2009, Heidelberg

GMA
Gesellschaft für Medizinische Ausbildung

Stifterverband
für die Deutsche Wissenschaft

MFT
MEDIZINISCHER FAKULTÄTENTAG
der Bundesrepublik Deutschland

Stiftung
Mercator

Research in Medical Education – Chances and Challenges

International Conference

20th - 22nd May 2009, Heidelberg

Congress Abstracts

© 2009

Address of the editor:
Prof. Dr. F. Resch
Dean of Study Affairs
Medizinische Fakultät Heidelberg, Studiendekanat
Im Neuenheimer Feld 346
69120 Heidelberg

Index of Contents

I.   Preamble

Dear Colleagues,

As chairs of the review committee, we are delighted to present you with 68 interesting, diverse, and high-quality contributions at the congress "Research in Medical Education - Changes and Challenges". The congress contributions cover an inspiring thematic spectrum of project and research work.

This book of abstracts is designed to give you the opportunity to thematically prepare yourself and read up on specific details before attending individual sessions, or, in the case of particular interest, to get in touch with the author of the corresponding abstract. We would further like to use this volume to inform you about the review process which took place as well as the review criteria which were employed. In recognition and appreciation of their work, all reviewers are mentioned by name.

Our thanks go first and foremost to the congress organization committee which assigned us with the demanding task of managing the review process. It was with pleasure that we accepted this challenge. Further thanks are due, above all, to the authors who present their project and research work and who, in doing so, provide valuable impulses for the scientific exchange of ideas in the field of medical education. We are also highly grateful to the reviewers for their willingness to critically appraise the congress contributions.

We hope that you will enjoy the congress "Research in Medical Education – Changes and Challenges", that it will be a fruitful time of scientific exchange among researchers, and that reading this book of abstracts will prove thought-provoking and enjoyable.

On behalf of the review committee

Dr. Sören Huwendiek and Dr. Christoph Nikendei
Chairs of the review committee

II. Review Process

In the following, we would like to describe the review process in order to increase the transparency of reviewer decisions in the evaluation of congress contributions:

24 reviewers agreed upon request to take part in the review process. Each contribution was evaluated by two reviewers. Reviewers were provided with a pre-defined list of criteria which served as a basis for evaluating the quality of the contributions. The list comprised six domains, each of which could be awarded up to 5 points by each reviewer. A maximum of 30 points was thus achievable (see Section III. Review Criteria).

In line with specifications of the congress organization committee, 40 contributions were selected for presentation in lecture form. Selection was based on abstract rankings assigned according to the mean score of the criteria-based points awarded by the 2 reviewers. Exceptions were cases in which abstract authors explicitly requested presentation in the form of a poster. All remaining abstracts were accepted for poster presentation regardless of author requests. It was not necessary to reject any of the submitted abstracts.

In our view, the procedure outlined above allowed a reliable and transparent review process.

III.   Review Criteria

In the following, the criteria list upon which the review process was based and which comprised 6 evaluation categories is presented. Reviewers were permitted to award up to 5 points for each category, so that each contribution could achieve a maximum of 30 points. The final score for individual contributions was calculated as the average of both reviewer scores.

Evaluation category
1 Development of the topic (max. 5 points)
Does the contribution provide an adequate overview of the current state of scientific research?   Is the research question at hand logically derived?
2 Research question (max. 5 points)
Does the research question conceivably emerge from the current state of scientific research?   Is the research question clearly formulated?   Is the research question answerable?
3 Quality of the study design / Methods (max. 5 points)
Can the research question be addressed using the selected methodology?   How high is the quality of the employed methods?   (Description without data / qualitative data based on free texts /   qualitative methodology according to Grounded Theory or Mayring /   descriptive quantitative data / longitudinal comparative study /   controlled study / review: literature search)
4 Results (max. 5 points)
Do the results contribute important insights in the respective field of research?
5 Implications of the research work (max. 5 points)
Does the research work carry implications beyond the immediate institute of higher education (national / international implications)?
6 Abstract quality (max. 5 points)
What qualities does the abstract show in terms of form and language (style, language, professional presentation)?
Total score (maximum 30 points)

IV.   Reviewer

We are most grateful to the reviewers listed below for their work in reviewing approximately 5 abstracts:

Thomas Böker-Blum, Heidelberg, Germany

Hans-Martin Bosse, Heidelberg, Germany

Bas de Leng, Maastricht, The Netherlands

Peter Dieckmann, Tübingen, Germany

Götz Fabry, Freiburg, Germany

Martin Fischer, Witten-Herdecke, Germany

Karim Gawad, Hamburg, Germany

Waltraud Georg, Berlin, Germany

Stefan Herzig, Cologne, Germany

Matthias Hofer, Düsseldorf, Germany

Bert Huenges, Bochum, Germany

Markus Krautter, Heidelberg, Germany

Martin Lischka, Wien, Austria

Ralph Nawrotzki, Heidelberg, Germany

Christoph Nikendei, Heidelberg, Germany

Falk Ochsendorf, Frankfurt, Germany

Christian Schirlo, Zurich, Switzerland

Kai Schnabel, Berlin, Germany

Jobst-Hendrik Schultz, Heidelberg, Germany

Dirk Sommerfeld, Hamburg, Germany

Matthias Siebeck, Munich, Germany

Robin Stark, Saarbrücken, Germany

Stefan Titz, Heidelberg, Germany

Peter Weyrich, Tübingen, Germany

V. Congress Abstracts

THURSDAY: SHORT COMMUNICATIONS

THURSDAY: POSTERS

FRIDAY: SHORT COMMUNICATIONS

Thursday: Short Communications

Session A: Research Methods in Medical Education (Chairmen: Steiner & Norcini)

01

Curricula influence on career choice? – a qualitative approach

Patrizia Calcagno, Marco Roos, Stefanie Joos, Joachim Szecsenyi, Katja Götz

University of Heidelberg, Department of General Practice and Health Services Research, Heidelberg, Germany

Background: Germany faces a lack of physicians. During the last ten years less and less medical students choose a career as a physician, especially in primary care. Our qualitative approach was to analyse possible reasons in undergraduate general practice curriculum.

Methods: We conducted five focus groups with students (N=21). We built focus groups consisting of first, third and fifth year students. All data were audio-recorded and transcribed and finally analysed by grounded theory and content analyses.

Results: Analyses of data shows that fifth year students have a more positive attitude towards general practice than first and third year students. This is clearly due to the contact students have with undergraduate general practice curriculum during their studies.

Conclusion: There seems to be a link between undergraduate general practice curriculum and positive attitude towards general practice. We recommend early and repetitive contact with general practice curriculum in medical education, and thereby a higher proportion in medical curricula.

02

Survey on the quality of randomized trials in medical education research

Joerg Marienhagen[1], Hans Gruber[2]

[1]University Regensburg, Medical Faculty, Regensburg, Germany
[2]University of Regensburg, Institute of Educational Science, Regensburg, Germany

Question: Although randomized trial designs are considered to be the golden standard for experimental studies, its role in medical education research is still controversial. Drawbacks in the quality of randomized trials limit the impact on a best evidence medical education. The aim of our study is to provide a survey of the quality of published randomized medical education trials. Criteria analyzed are:

1. reporting quality,
2. methodological rigour
3. internal validity.

Method: Six recent volumes (2002-2007) of four leading journals (Medical Education, Medical Teacher, Academic Medicine, Teaching and Learning in Medicine) were surveyed. A total of 70 randomized trial reports were assessed using 37 descriptors of reporting quality, methodological rigour and internal validity. Descriptive and exploratory methods were applied, including significance testing (Chi-square, Mann-Whitney- U, Fishers exact test, α=.05).

Results:

1. Less than 10% of the publications included randomized medical education trial reports; there was no significant increase in the period 2002-2007. The 70 selected papers covered many different skills and educational interventions.
2. 87% were monocenter trials, most using two-arm parallel designs.
3. 45 publications reported significant results, but without an association between significance and sample size (p=.75).
4. The assessment of both the internal validity and the methodological rigour was often hampered by missing information.
5. Less than 25% of the studies included a description of the randomization procedure or the concealment of allocation.
6. Blinding was only reported in 26 articles.
7. In 30 trials, no information about an intention-to treat-analysis was given.
8. Complete follow-up was reported only in 11 articles.
9. 53 papers presented no description of the drop-outs; 37 did not inform about handling of missing values, 25 publications completely ignored this issue.
10. A priori sample size estimations were made in only 17 reports, post hoc power analysis in two studies.
11. Effect sizes were reported in 30 studies.
12. A description of the primary endpoint was found in 48 publications. Multiple endpoints were analyzed in 56 trials, but only few addressed the alpha inflation problem.

In total, an increase over time of the reporting quality could not be observed.

Conclusion: Many publications in medical education, even in top journals, still have a poor reporting quality of published randomized trials. Thus, the assessment of the internal validity was difficult. The survey identifies a number of substantial threads to validity, however, which may affect the acceptance of randomized trials in a best evidence medical education framework. Improvements of the methodological standards and of the reporting quality thus are major requirements for improving the professional quality of medical education research.

03

Development of expertise in clinical teaching (DECT) - study design

Jan Breckwoldt, Teresa Campbell, Ulrike Fehr, Kerstin Lingemann, Christian Siggemann

Charité-Berlin, Benjamin Franklin, Medical Center Anesthesiology, Berlin, Germany

Objectives: How quality of clinical teaching may be described and how expertise in this field might develop is not clear [1]. Consequently qualitative research is needed to generate more theory driven models to understand clinical teaching, and to improve didactical training. We attempted to describe the development of expertise in clinical teaching by a multidimensional observational design. As quality criteria we used 10 categories of teaching quality for which a sound evidence base is acknowledged in school teaching [2], [3].

Methods: Clinical teaching sessions of 50 minutes with a group of 5-6 3rd year students in emergency medicine were analysed using the following dimensions:

1. structured analysis of the video recording by external experts
2. evaluation by participating students using a questionnaire
3. self-evaluation by the clinical teacher immediately after the session
4. "think-aloud" protocol by the teacher reflecting about on video recording
5. "think-aloud" protocol by the standardised patient (SP) on the video recording

All dimensions were matched with each other in a sense of "multiple triangulation".

Results: 44 teaching sessions with 32 teachers were analysed by the described design. Teacher's and student's feedback stated no major interference of the study setting with their teaching encounter. More than 95% of the questionnaires were usable, video recordings and TA protocols were of sufficient quality. All 10 categories of teaching quality were applicable.

Conclusion: The method is feasible and seems to generate sufficient data on teaching quality. It is possible to correlate different perspectives on the teaching session with each other. Whether the design is useful to describe the development of expertise in clinical teaching remains to be proven by cross-sectional samples.

References

1. Steinert Y, Mann K, Centeno A, Dolmans D, Spencer J, Gelula M, Prideaux D. A systematic review of faculty development initiatives designed to improve teaching effectiveness in medical education: BEME guide No. 8. Med Teach. 2006;28(6):497-526. DOI: 10.1080/01421590600902976.
2. Helmke A. Unterrichtsqualität erfassen, bewerten, verbessern. Seelze-Velber; Kallmeyer-Verlag; 2003.
3. Meyer H. Was ist guter Unterricht? Berlin; Cornelsen-Veralg; 2004.

04

Undergraduate preclinical and bedside performances are related? A logit model.

Ana Correia, Miguel Portela, Pedro Oliveira, Manuel João Costa

University of Minho, Braga, Portugal

Question: In this study we investigated the power of a multidisciplinary and extensive pre-clinical course on predicting clerkship poor performances, as assessed at the workplace by multiple clinicians. We were interested in testing the effect of different types of assessment.

Methods: The participants were 149 students who have concluded all of the (30) clerkships in the curriculum (118/360 ECTS). The setting is a medical school with a 6-year integrated curriculum. The clerkships in several specialties make up the 4th-6th years and take place in two hospitals and several health centers (urban and rural). In every clerkship, each student is assessed by a clinician with the "Jefferson Medical College" rubric (16-items, in a 9-point scale containing descriptors of performance) for assessment of Professionalism and Clinical Competence. The aggregate clinician marks contribute 25% to the final clerkship score. The course "Biopathology and Introduction to Therapeutics" represents 23% of all the 3 pre-clinical years credits (42/180 ECTS). The course is clinically oriented and is organized in 5 modules. Different types of assessment are used:

1. "integrated" written exam at the conclusion of the course, largely made up of open questions on clinical vignettes;
2. "module" written exams at the conclusion of each module, largely MCQ with some clinical vignettes;
3. a stations practical exam at the conclusion of each module;
4. an attitude mark (an aggregate mark resulting from rubrics handed by faculty).

Student demographic variables (sex, age) and GPA at entrance were also used. A logit binary choice model was used in the quest for predictors. An exploratory analysis revealed that 10% students had 11 or more occurrences in the lowest quartile of mark/clerkship of professionalism or clinical competence. Thus the "problematic student" (dependent variable=1) was defined as the one with 11 or more marks bellow the first quartile.

Results: Lower probabilities of being a "problematic student" are associated with higher grades in the "integrated" exam (marginal effect (me): -3 percentage points (pp); odd ratio (or): 0.74), higher attitude marks (me: -2.9 pp; or: 0.75) and with being a female student (me: -15.8 pp; or: 0.27). The remaining independent variables, e.g. MCQ exams, did not exhibit statistical significance.

Conclusions: The integrated exam and the attitude marks of the pre-clinical course were predictors of clinician assessment of student professionalism and clinical competence. The predictive method is applicable in other

schools as long as a crucial course (or aggregate marks of several key courses) in the early years are identified. The importance of scoring student attitudes in pre-clinical courses was established. Finally, the study provides evidence that MCQ exams are very weak in predicting professionalism and clinical competence. Generalization of our findings requires increasing the sample and testing the method in other medical schools [1], [2].

References

1. Stern D, Frohna AZ, Gruppen LD. The prediction of professional behavior. Med Educ. 2005;39(1):75-82. DOI: 10.1111/j.1365-2929.2004.02035.x.
2. Wilkinson T, Frampton CM. Comprehensive undergraduates medical assessments improve prediction of clinical performance. Med Educ. 2004;38(10):1111-1116. DOI: 10.1111/j.1365-2929.2004.01962.x.

05

Retrospective "Think aloud" (RTA) as a technique to describe teacher's cognitive processes during teaching

Christian Siggemann[1], Maria Rupprecht[2], Kirstin Hansen[3], Jan Breckwoldt[4]

[1]University Medicine Berlin, Benjamin Franklin Medical Center, Department of anaesthesiology and perioperative intensive care medicine, Berlin, Germany
[2]Universtiy Regensburg, Institute of pedagogic psychology, Regensburg, Germany
[3]University Regensburg, Institute of pedagogic psychology, Regensburg, Germany
[4]Charité – University Medicine Berlin, Benjamin Franklin Medical Center, Department of anaesthesiology and perioperative intensive care medicine, Berlin, Germany

Objectives: Quality of teaching can be measured by various methods such as students` evaluation, students` test results, analysis by experts via visitation or videography or by objective standardised teaching examinations [1], [2]. However, what can't be described by these methods are cognitive processes of the teacher while teaching. These might reflect the level of awareness related to the teaching encounter, sometimes referred to as metacognition [3]. Metacognition is thought to be attributed to teaching expertise and could be of importance for describing the development of expertise. To determine the amount and level of metacognition during clinical teaching we found retrospective "think aloud" (RTA) based on video recordings to be a suitable method, which is widely used in social sciences to reveal cognitive processes [4], [5].

Methods: In a clinical teaching setting we recorded 50-min teaching sessions on video. Standardised sections were selected from those videos and presented to the specific teacher. After a "warm up"-sequence to become familiar with the method, the teacher was asked to speak out aloud his thoughts while watching his teaching session. Subsequently an additional standard teaching session with another teacher was presented. The RTA session was voice recorded and transcribed into a written protocol. The protocols were analyzed regarding the following categories:

- Quantity of spoken words as a global measure for the ability of abstraction
- Ability and amount of critical reflection of different teaching situations and methods
- Speaking about the lessons` contents vs. speaking about teaching itself.

We further correlated these categories with the level of expertise of the test subjects.

Results: In the setting described above the teachers successfully participated in the RTA. Their thoughts on the teaching sessions were organized into different categories. First analysis of our data shows the following trends: Those teachers who we labled as experts in the field of clinical teaching expressed fewer thoughts. However, they referred more to the teaching process itself then those teachers with a lower level of expertise. Furthermore, novices were especially critical towards the content of their own lesson and their behavior. Experts on the other hand focused especially on teaching methods, both their own and those of the teacher in the standardised lesson.

Conclusions: The results of the "think-aloud" protocols have to be matched with other dimensions of teaching such as quality and self-assessement by teachers. Whether the method is useful for distinguishing different levels of metacognition and to attribute these to the level of expertise of the clinical teacher is subject of further analysis.

If metacognition clearly correlates with the level of expertise in clinical teaching, the RTA should be a method to indirectly measure expertise. Further research concerning the correlation between metacognition and teaching quality is in progress.

References

1. Steinert Y, Mann K, Centeno A, Dolmans D, Spencer J, Gelula M, Prideaux D. A systematic review of faculty development initiatives designed to improve teaching effectiveness in medical education: BEME guide No. 8. Med Teach. 2006; 28(6):497-526. DOI: 10.1080/01421590600902976.
2. Morrison EH, Rucker L, Boker JR, Gabbert CC, Hubbell FA, Hitchcock MA, Prislin MD. The Effect of a 13-hour curriculum to improve residents' teaching skills. Ann Intern Med. 2004;141(4):257-263.
3. Schraw G. Promoting general metacognitive awareness. Instr Sci. 1998;26:113-125. DOI: 10.1023/A:1003044231033.
4. Ericsson KA, Simon HA. Protocol analysis: verbal reports as data (revised ed.). Cambridge (MA): Bradford/MIT press; 1993.
5. van Someren MW, Barnard YF, Sandberg JA. The think aloud method. A practical guide to modelling cognitive processes. London: Academic Press; 1994.

Session B: Peer Assisted Learning (Chairmen: Gawad & Schirlo)

06

Teaching topographical anatomy using diagnostic sonography: Positive evaluation data for a new curriculum

Ralph Nawrotzki[1,2], Joachim Kirsch[1]

[1]*University of Heidelberg, Institute of Anatomy and Cell Biology, Heidelberg, Germany*
[2]*University of Heidelberg, Medical Faculty, Heidelberg, Germany*

Background: A sound knowledge of topographical anatomy is crucial for working in various medical disciplines. For example, knowing the topography of the abdomen is a pre-requisite for the interpretation of CT, MRI or ultrasound scans of this region. With this in mind, a new curriculum was devised at the Department of Anatomy at Heidelberg which uses sonography to teach first-year medical students in abdominal topography. We present critical steps taken towards implementation of this program and report evaluation data after two pilot courses.

Design of the curriculum: In a four-week program, 280 students learned how to carry out and interpret scans of the retroperitoneum, liver, pancreas and spleen, the right kidney and urinary bladder, and of the male and female reproductive organs. Posttraining examinations were given in these areas to determine the students' degrees of knowledge and competency gained by the curriculum.

Critical steps: Aside from providing the infrastructure for the course, the major challenge in the implementation process was to train 28 graduate instructors. They had to know how to instruct groups of five students per week in sonography skills and in how to interpret the acquired images into abdominal topography. This goal was reached by training volunteers with a leading medical teacher in the field. However, some first-generation instructors will soon conclude their own studies and may not be available for future classes. Therefore, an in-house training program was designed to train future instructors. Other critical steps in the planning phase of the curriculum concerned the writing of a manual, the design of learning objectives and exam questions, and the process of forming a team of 28 instructors and six professors.

Evaluation results: To assess whether the program met its goals during the pilot phase, formative and summative program evaluations were performed at the end of each 4-week course. In 2007, 93% of the participants expressed high degrees of overall satisfaction with the course and a majority of the participants (73%) stated that the course had increased their knowledge in the topography of the abdomen. However, fewer students (44%) stated that the pretraining tests (schematic drawings of the images that would be taken later in the course) were helpful to gain competency in the subject. The evaluation of the 2008 course revealed similar values.

Conclusions: A new curriculum was devised at the Department of Anatomy at Heidelberg to teach first-year medical students in topographical anatomy of the abdomen using diagnostic sonography. The evaluation of the program in the pilot phase has yielded highly encouraging results.

07

Cross-year on ward peer tutoring program: Benefits for the students on ward and for the tutors when starting their job as physician 1½ years after

Nadja Köhl-Hackert, Sven Andreesen, Katja Hoffmann, Jana Jünger, Christoph Nikendei

University Hospital of Heidelberg, Department of General Internal and Psychosomatic Medicine, Heidelberg, Germany

Question: Peer-assisted learning is a common and effective method in medical education for both: learners and peer-tutors. In summer 2007 a PAL-program was introduced at the University of Heidelberg Medical Hospital, Germany, to improve the clinical technical skills on ward. The aim of this controlled trial was to assess the effects of a cross-year on ward peer tutoring program on

1. the students: how they rated their ward emplacement and
2. the tutors: how they feel to benefit when they start their work as physician.

Method: 168 medical students currently in their third year were included in the study. 88 of them were assigned to the intervention group (IG) and took part in 10 student-led tutorials. The remaining 80 students were assigned to the control group (CG) and did not receive any tutorials during their ward emplacement. Tutorials were led by 14 volunteer final year student tutors who assessed the program after 1½ years after having been a tutor.

Results: Students who took part in the PAL-program (IG) spent significantly more time with a final year student than those from the CG (p<0,001), whereas the IG spent less time with the physicians on ward (p<0,008).

Furthermore the IG felt significantly more integrated on ward (p<0,001) and significantly less anxiety concerning on-ward work as a medical doctor (p<0,001) than the CG. Results of the questionnaire of the tutors after 1½ years will be presented.

Conclusions: As expected, the IG was more often taught by final year students within the PAL-program than the CG and spent significantly less time with the physicians on ward. Having a PAL-program the students felt better integrated on ward and less anxious concerning on-ward work. While peer tutors are no substitute for teaching by a qualified physician and the contact between students and physicians on ward is important, the on ward PAL-program is a particularly valuable tool in supporting medical students.

Results of the tutor questionnaire after 1½ years will be discussed.

08

Breaking new ground in teaching medical students emergency medicine- Evaluation of a multi-centre, peer-guided teaching concept

Peter Iblher[1], Hanns Iblher[2], Robert F. Wolff[3], Holger Harbs[4], Michael Hüppe[1], Wolfgang Eichler[1]

[1]Universität zu Lübeck, Klinik für Anästhesiologie, Lübeck, Germany
[2]Charite Universitätsmedizin Berlin, Campus Benjamin Franklin, Klinik für Anästhesiologie und Operative Intensivmedizin, Berlin, Germany
[3]Universitätsklinikum Freiburg, Deutsches Cochrane Zentrum, Freiburg, Germany
[4]Präsidium Arbeitsgemeinschaft Erste Hilfe und Notfallkunde für Medizinstudierende (AGEHMED) e.V., Berlin, Germany

Background: Medical students who want to apply for preliminary medical examinations in Germany have to prove that they have attended a first-aid course. But lay-courses are often not up to the standards and needs that medical students require of them. As a result, and since 1996, members of the German task group "AGEHMED" - all of whom are medical students – have been teaching their peers target group orientated in first aid and emergency techniques at Medical School. During such training courses, up to 120 medical students are instructed by 30 specially trained Peers. It is not only the transfer of fundamental emergency knowledge and techniques in class; the attendees also gain hands-on experience by rotating through modules where they have to solve different lifelike emergency situations using Standardized Patients. Under supervision of other attendees and the instructors the proceeding is then discussed in order to come up with the right algorithm for coping with the emergency situation. The task group "AGEHMED" is currently active with 190 students at six German Medical Schools. All Medical Students – even those without any previous knowledge – can participate and qualify in emergency medicine education of their peers following a supervised five-step model.

Question: The aim of this study was to examine the results of a questionnaire that was used for evaluation of peer-guided AGEHMED-first-aid courses at medical schools over the last 7 years and to assess its validity and reliability.

Method: From 2000 to 2007 59 first-aid courses with 4,941 medical students were evaluated. After carrying out descriptive analyses the factorial validity and reliability (Cronbach's α) of the questionnaire were assessed. The inter-scale correlation of the significant factors was also analysed.

Results: The courses were continuously well rated. 68% of variance was clarified by the factors "Quality of the course", "Learning success", "Comparison to other university courses", "Overall Satisfaction" and "Scheduling of the course". The mean inter-skale correlation was r=0.23 and Cronbach's Alpha was between 0.62 and 0.81.

Conclusions: The peer-guided courses have been continually well received by the course participants over the last seven years. The questionnaire shows sufficient validity and reliability. Based on these results, we may presume that this standardized approach can be more widely put into practice in the education of medical students.

09

Efficacy of a peer-assisted skills training for students in obstetrics and gynecology

Wolfgang Frobenius[1], Jana Jünger[2], Matthias W. Beckmann[1], Susanne Cupisti[1]

[1]Universitätsklinikum Erlangen, Erlangen, Germany
[2]Universitätsklinikum Heidelberg, Heidelberg, Germany

Objective: What is the efficacy of a peer-assisted skills training for students during a gynecological and obstetric practical course in the formative theoretical and practical examination (objective structured clinical examination, "Mini-OSCE") (primary end point)? How do students who have been taught in this way rate the educational quality, teaching atmosphere, personal learning progress, and this type of practical course overall (secondary end points)?

Methods: Following the implementation of a skills training section during the practical course, students (n=139) were randomly assigned to 24 groups. Most of the groups consisted of six participants. Half of these groups, with a total of 71 students, received peer teaching during skills training, while the other half (n=68) were taught by postgraduate lecturers. The rest of the one-week practical course, including the theoretical and practical examination, was identical for all groups. The results of this also newly implemented "Mini-OSCE" (primary end point) and the results of the evaluation before (comparability of the groups) and after the practical course (secondary end points) were analyzed.

Results: The groups taught by faculty staff did not differ with regard to age, sex, number of completed semesters, or prior specialist training from the students who were taught by the peer teachers. In the purely practical OSCE stations, the students in the postgraduate group achieved 58.26 ± 3.2 (95% CI, 57.5–59.5) of 62 points, while in the peer teacher group they scored 58.82 ± 2.6 (95% CI, 58.2–59.4) (p = 0.27). In dealing with the case descriptions, for which material taught to both groups in seminars by postgraduate lecturers was relevant, the postgraduate group achieved 26.52 ± 3.2 (95% CI, 25.7–27.3) of 30 points, while in the peer teacher group the figure was 26.29 ± 2.7 (95% CI, 25.6–27.0) (p = 0.64). In the final evaluation regarding the motivation of the trainers, the teaching atmosphere, and the effectiveness of preparation for the practical examination, there were no significant differences. The postgraduate lecturers only had significantly better results than the peer teachers in

connection with conveying the theoretical background and responding to questions.

Conclusions: For communicating the principles of basic practical medical skills in a gynecological practical course, teaching by specially trained peers is just as effective as teaching by postgraduate teachers [1], [2], [3] (see table 1 [1], 2 [2], 3 [3]).

References

1. Weyrich P, Celebi N, Schrauth M, Möltner A, Lammerding-Köppel M, Nikendei C. Peer-assisted versus faculty staff-led skills laboratory training: a randomised controlled trial. Med Educ. 2009;43(2):113-120. DOI: 10.1111/j.1365-2923.2008.03252.x.
2. Heckmann JG, Dütsch M, Rauch C, Lang C, Weih M, Schwab S. Effects of peer-assisted training during the neurology clerkship: a randomized controlled study. Eur J Neurol. 2008;15(12):1365-1370. DOI: 10.1111/j.1468-1331.2008.02317.x.
3. Möltner A, Schellberg D, Jünger J. Grundlegende quantitative Analysen medizinischer Prüfungen. GMS Z Med Ausbild. 2006;23(3);Doc53. Zugänglich unter: http://www.egms.de/en/journals/zma/2006-23/zma000272.shtml.

Demographics and pre-clerkship self-assessment of the students	Peer-tutored group (n=71)		Faculty Staff-tutored group (n=68)		p-value
	mean	SD	mean	SD	
Age	25,4	±2	25,4	±2,6	0,924*
Gender	female 37 male 34		female 35 male 33		0,537**
Number of Semester	9,6	±0,8	9,4	±0,9	0,352*
Previous practical training in obstetrics and gynecology?	yes: 15 no: 56		yes: 12 no: 56		0,671**
Interest in obstetrics and gynecology?[a]	2,9	±1,3	3,4	±1,5	0,051*
Self-assessment of theoretical knowledge in taking a Pap smear[b]	3,3	±1,4	3,6	±1,5	0,236*
7 Self-assessment of theoretical knowledge in taking a wet prep (wet mount)[b]	3,8	±1,2	3,8	±1,4	0,830*
8 Self-assessment of theoretical knowledge in demonstrating the movements of the fetus during second stage of labour[b] using a mock-up	3,7	±1,1	3,8	±1,5	0,784*
9 Self-assessment of theoretical knowledge in analyzing data from expectant mother's record of prenatal and natal care[b]	3,7	±1,3	4,0	±1,4	0,258*

Table 1: Baseline demographics and pre-clerkship self-assessment of the students; a mean (SD) of Likert scale (1 = I am very interested …6 = I am not interested); b mean (SD) of Likert scale (1 = I feel very competent … 6 = I feel very incompetent); * One way ANOVA; ** Fisher's exact test

OSCE-Station Written Exam	Students trained by faculty staff n=68			Students trained by peer teachers n=71			p-value
	mean	SD	95% CI	mean	SD	95% CI	
Pap Smear	21,13	1,5	20,8-21,5	21,23	1,5	20,9-21,6	0,713
Wet Prep	18,60	1,5	18,2-19,0	18,87	1,2	18,6-19,2	0,246
Obstetrical Skills	18,23	2,0	18,1-19,0	18,72	1,5	18,4-19,1	0,524
Overall OSCE	58,26	3,2	57,5-59,5	58,82	2,6	58,2-59,4	0,271
Breast Cancer	8,79	1,2	8,5-9,1	9,01	1,2	8,7-9,3	0,292
Genital Cancer	8,94	1,7	8,5-9,3	8,70	1,2	8,4-9,0	0,333
Pregnancy-induced Diseases	8,79	1,5	8,4-9,2	8,60	1,7	8,2-9,0	0,402
Overall Written	26,52	3,2	25,7-27,3	26,29	2,7	25,6-27,0	0,646

Table 2: Results of the assessment (written exam and OSCE) at the end of the clerkship; peer-tutored students scored similarly high when compared with their fellow students trained by faculty staff.

Post-clerkship evaluation	Students trained by faculty staff (n=68) mean SD	Students trained by peer teachers (n=71) mean SD	p-value
Faculty staff/peer teachers were very motivated	1,29 ± 0.6	1,45 ± 0,8	0,046
Faculty staff/peer teachers created an excellent teaching climate	1,32 ± 0,7	1,30 ± 0,5	0,853
Faculty staff/peer teachers explained the theoretical background very well	1,17 ± 0,5	1,51 ± 0,8	0,005
Faculty staff/peer teachers answered to all my questions satisfactorily	1,29 ± 0,6	1,77 ± 0,9	0,000
The Skills training prepared me for OSCE very well	1,21 ± 0,4	1,22 ± 0,5	0,981
My expectations regarding the clerkship were entirely met	1,87 ± 1,0	1,89 ± 0,8	0,887
My overall assessment of the clerkship is very good	1,75 ± 0,8	1,82 ± 0,8	0,593

Table 3: Mean (SD) of Likert scale (1 = I strongly agree….6 = I strongly disagree); significant differences between both groups were found only with regard to the trainers competence of answering questions and explaining the background of examination methods

10

Find the right language – using standardized students

Christiane Eicher, Marco Roos, Joachim Szecsenyi, Peter Engeser
University of Heidelberg, Department of General Practice and Health Services Research, Heidelberg, Germany

Background: Internship in general practice is based on a close relationship between GP-(general practitioner) teacher and student. In every day practice formative feedback is the most essential part in the teaching environment. To meet a need of GP-teachers to improve on their feedback skills, the department of General Practice and Health's Services Research at the University of Heidelberg established a feedback training program with standardized students and patients.

Method: The changes in the participant's feedback skills were measured by a pre-post questionnaire covering familiarity of feedback, self-confidence in realizing feedback, preparation for discussions with undergraduate students and improvement of communicative skills.

Results: On a 1 to 6 Likert-scale the participants showed a significant increase in the familiarity of formative feedback (mean 3,75 vs. 2,0, p<0.001), the preparation for discussions with undergraduate students (mean 3,43 vs. 1,62, p<0.001) and an improvement of communication skills (mean 2,50 vs. 1,88, p<0.028). The self-confidence in giving formative feedback showed an increase by trend (mean 3,86 vs. 2,93, p<0.75).

Conclusions: The results of this study demonstrate the usefulness of feedback training programs with standardized students to improve the formative feedback skills of GP-teachers. It should be considered to implement such a feedback training program in faculty development to qualify our medical teachers and thereby hold and raise the standard in medical education.

Session C: Student Selection (Chairmen: Dieter & Anderson)

11

Admission tests for dental students - prognostic validity of different selection procedures, a systematic review

Petra Scheutzel

University Dental School, Münster, Germany

Student selection and recruitment play an important role in the successful outcome of dental education. For this reason over the years a wide variety of selection criteria / admission test procedures have been developed in different countries. In Germany the universities themselves can select 60% of their freshmen according to their own admission process. However, up to now this option has been scarcely applied, admission of most students is based only on their high-school grade point average, even though the prognostic validity of the high-school grade as predictor of students' performance at the dental school is relatively low (r=0.38) in comparison with the specific validity coefficient in medicine (r=0.58). It is assumed that the reason for this is that the high-school grade does not give the lack of information about the candidate's psychomotoric competence required in dental education and later on in the dental practice.

Therefore, not only in Germany universities and dental schools are confronted with the task of developing a reliable, valid, objective and also economic admission test, which allows selection of the most suitable students and decrease the number of 'dropouts' and 'longtime students', as dentistry is one of the most expensive courses within the University. The present study will contribute to this situation.

Based on a systematic literature research, different selection procedures, which have been applied around the world over the years, are resumed and compared with respect to their prognostic validity regarding different parameters of study success and reliability. Based on this, the use of high-school grades in combination with ability test results and a practical test of manual dexterity is recommended for student selection in dentistry (see table 1 [1]).

Study country / year	Sample	Performance-Criterion	Validity	Comparison		
High-school grade point average (GPA)						
- BRD /2007	Meta-analysis N = 6.060	Course marks - overall	r = 0.38*	Medicine r = 0.55		
	n = 5.638	- preclinical	r = 0.39*	r = 0.58		
	n = 422	- clinical	r = 0.24*	-		
School-grades – natural sciences						
- USA / 1986	N = 3.498	Course marks - 1st year	r = 0.37	GPA r = 0.42		
Knowledge test						
DAT-Part I: NaturalSciences		Course marks		GPA	combination	
- USA / 1986	N = 3.498	- 1st year	r = 0.45	r = 0.42	r = 0.52	
Dental admission test (written)						
TMS - BRD /2007	Meta-analysis N = 5.871	Course marks - overall	r = 0.35*	Medicine r = 0.51		
- BRD / 1996	N = 21.000	Grade points - Vorphysikum	r = 0.35*	GPA r = 0.40	combination r = 0.44	
		- Physikum	r = 0.29*	r = 0.31	r = 0.35	
DAT-total - USA / 1989	N = 2.329	Course marks - preclinical	r = 0.28	PAT r = 0.32	school-grades r = 0.18	
	N = 2.934	- clinical	r = 0.25	r = 0.42	r = 0.19	
	N = 406	- Examination	r = 0.49	r = 0.0	r = 0.39	
Dental admission test (practical): psychomotor tests						
Dexterity test - USA / 2007	N = 50	Course marks - preclinical	r = 0.40	PAT r = 0.32	combination r = 0.35	
		- clinical	r = 0.27	r = 0.42	-	
BATZ - BRD / 1978	N = 183	Grade points - Vorphysikum	r = 0.07	GPA r = 0.28	combination r = 0.17	
	N = 152	- Physikum	r = 0.34	r = 0.25	r = 0.42	
	N = 52	- Examination	r = 0.54	r = 0.16	r = 0.58	
Waxing test - USA / 1986	N = 135	Course marks - 1st year	r = 0.39	PAT r = 0.21	combination r = 0.43	
Wire-bending test - USA / 1990	N = 108	Course marks - precl. techn. course	r = 0.24–0.48	PAT r = 0.1-0.25	combination r = 0.54	
Interview						
unstructured - Kanada / 2004	N = 145	Course marks - 1st year	r = - 0.17	Knowledge test (DAT- Part I) r = 0.46		
		- 3rd year (clinical)	r = 0.07	r = 0.24		
structured - Kanada / 2007	N = 373	Course marks - 1st year	r = 0.11	Knowledge test (DAT- Part I) r = 0.24		
		- 3rd year (clinical)	r = 0.18	r = 0.1		

100

Table 1: Prognostic validity of various admission criteria as a predictor of dental school performance (selection of representative studies)

12

Are marks in the university entrance diploma good predictors for success in undergraduate medical education?

Martina Kadmon[1], Alexandra Kraft[2], Dagmar Schweinfurth[1], Guni Kadmon[1]

[1]Medical Faculty, Heidelberg, Germany
[2]Thorax Clinic, Heidelberg, Germany

Introduction: Since October 2005 the German Medical Faculties select 50% of their students in an in-house selection process, the remaining university places being centrally allocated mostly on the basis of marks in the university entrance diploma and the time on a waiting list. According to federal and land law regulations the in-house selection criteria must also grant a leading role of the marks in the university entrance diploma supplemented by a set of additional criteria. The present study analyses the predictive value of school leaving examination grades in two student cohorts starting undergraduate medical training at Heidelberg Medical School in 2005 and 2006 with respect to the endpoints "performance in medical examinations", "delay of study progress" and "drop out rate". Furthermore, the predictive value of the university entrance diploma is compared with the criterion "time on a waiting list" and the in-house criteria for admission with respect to the same endpoints. In-house admission criteria

at Heidelberg Medical School are prices in educational contests, previous training in paramedical professions and voluntary social work.

Methods: During the application process the overall grade in the university entrance diploma, subject specific recent school marks, data on success in educational competitions, previous paramedical employment and engagement in voluntary social work are documented. During training the performance in medical examinations of our students are documented and compared to their individual application data.

Results: In the first year of undergraduate training the correlation coefficient between the performance in medical education and the overall marks in the university entrance diploma and the grades in mathematics reached 0.51 and 0.55, respectively, but decreased to 0.15 and 0.08 during clinical training. Already in the first year of training the variability of performance in medical examinations was too high across all levels of results in the final school examination and individual subjects for those being an adequate criterion for individual selection decisions. Furthermore, the drop out rate was similar among all students with university entrance diploma grades between 1.0 and 2.7. The performance in medical examinations during the first two years of those students being selected from a waiting list were lower on average than that of the best school alumni, but the difference disappeared during clinical training. The prognostic value of all other criteria analysed was weak already during the first two years of preclinical education.

Conclusions: Grades in university entrance diplomas and specific school subjects bear a low predictive value for study success in the first two years of medical education and none at all for the clinical training. To date, other reliable admission criteria are missing. New criteria have to be sought and must come under scrutiny.

13

Effect of different modes of students' admission to the study of human medicine on their progress

Simone Manhal, Heide Neges, Daniel Ithaler, Hans Christian Caluba, Gilbert Reibnegger, Josef Smolle
Medical University of Graz, Graz, Austria

Introduction: On July 7, 2005, the European Court decided that Austria's previous foreign students' admission procedure was against European Law. As a consequence, Austrian Law was changed, and universities now are entitled to restrict the number of new students in some disciplines, among them human and dental medicine.

The Medical University of Graz (after using a selection procedure after the first semester in academic year 2005/06), since academic year 2006/07 has developed and employed an own admission test based mainly on multiple choice questions from the fields of chemistry,

physics, biology and mathematics, enriched with items based on the proper comprehension of scientific text passages.

The aim of the present study was to inquire into the effects of three different modes of admission on students' progress.

Study subjects and methods: The analysis comprised all students admitted to the diploma programme "Human Medicine" in academic years 2004/05 (free admission), 2005/06 (admission after one introductory study semester) and 2006/07 (admission after passing a knowledge test based on natural sciences subjects).

For analysis of the data, statistical techniques were used which are also widely employed for the analysis of waiting or survival times: Kaplan-Meier plots were constructed to explore the time periods needed for reaching certain levels during the curriculum, and the generalized Savage statistics was employed to assess significance of differences. The proportional hazards models (Cox model) were used to assess the impact of additional variables like gender and nationality on these waiting times in a multivariate manner.

Results: Both the restricted admissions after one introductory semester and after the knowledge test were associated with a tremendous decrease of the drop out rate as well as a dramatic increase of the success rate in terms of reaching certain levels in shorter time periods. The effects of gender and nationality on the success rates are discussed.

Conclusion: The results point out very clearly the obvious weaknesses of the free admission mode to the study of human medicine without any selection of the applicants in terms of their abilities to master the study which was legally dictated in Austria prior to 2005. This holds true in terms of waste of human life time of the students as well as of efficiency of the huge financial and personal resources invested by the university and – eventually - by the society itself.

14

What sort of doctor are we trying to train? Competence-oriented medical education

Marianne Giesler[1], Götz Fabry[2], Johannes Forster[3], Silke Biller[1]
[1]Albert-Ludwigs-Universität, Medizinische Fakultät, Kompetenzzentrum für Lehrevaluation, Freiburg, Germany
[2]Albert-Ludwigs-Universität, Abteilung für Medizinische Psychologie, Freiburg, Germany
[3]Sankt-Josefs-Krankenhaus, Freiburg, Germany

Background: Due to the enormous growth and increasing complexity of knowledge, "... educational and professional qualifications can no longer be described according to a rigid canon of knowledge in specific subjects passed on from generation to generation" [1]. Therefore, in the last decade there has been a shift to outcome-based education. This has also been the case for medical

education, where several attempts have been made to identify learning outcomes, which represent essential core competencies that all physicians must possess. This research covers the identification of essential medical competencies and the development of a questionnaire to assess these competencies.

Method: A team of experts identified several domains of medical core competencies, most of which were derived from the German Approbationsordnung (ÄAppO), the defining national framework for medical education. Items were identified for each domain and their comprehensibility was tested by students in their final year. The dimensionality and reliability of the resulting questionnaire the "Freiburger Fragebogen zur Erfassung von Kompetenzen in der Medizin" (FKM) was examined on samples of students before and after their final year and on medical residents. Additionally, analyses of variance were conducted.

Results: A first analysis showed satisfactory reliability (Cr-a between .68 and .88) for all seven scales of the first version of FKM. A critical examination led to a revision of the questionnaire: For two scales additional items were formulated and two new domains of competencies were defined. The following analysis also showed satisfactory reliability scores (Cr-a between .67 and .89)for the FKM-scales: clinical skills, communicative competence and soft skills, team-competence, health-system-competence, competencies on management level, competence in medical profession, learning-competence, scientific-competence and personal competence. Furthermore, compared with their male colleagues, female students show higher ratings in communicative competencies and soft skills.

Conclusions: The FKM-Questionnaire was developed in order to evaluate educational outcomes in medical schools. Given the uncertainty of self-assessment further analyses are necessary in order to test the validity of the questionnaire as a measure of actual competence. However, comparing the results of students and graduates from different schools and different cohorts might in any case be helpful to identify so far neglected areas of the curriculum that need special attention. Furthermore, the extended use of the FKM with postgraduates will inform us both on the relevance of the targeted competencies and on the validity of the instrument.

References

1. Klieme E, Hartig J, Rauch D. The concept of competence in educational contexts. In: Hartig J, Klieme E, Leutner D (Hrsg). Assessment of competencies in educational contexts. Göttingen: Hogrefe; 2008. S.3-22.

Please cite as: Giesler M, Fabry G, Forster J, Biller S. What sort of doctor are we trying to train? Competence-oriented medical education. In: Research in Medical Education - Chances and Challenges 2009. Heidelberg, 20.-22.05.2009. Düsseldorf: German Medical Science GMS Publishing House; 2009. Doc09rmeC4.
DOI: 10.3205/09rme14, URN: urn:nbn:de:0183-09rme140

Freely available from:
http://www.egms.de/en/meetings/rme2009/09rme14.shtml

15

Health Behaviour of Medical Students of Dresden University of Technology and Consequences for their Educational Trainings

Karen Voigt[1], Anne Göbel[1], Joachim Kugler[2], Stefan R. Bornstein[3]
[1]University Hospital Carl Gustav Carus of the Dresden, University of Technology, Department of General Medicine/Medical Clinic III, Dresden, Germany
[2]Medical Faculty of the Dresden, University of Technology, Chair of Health Sciences/Public Health, Institute for Medical Informatics and Biometry, Dresden, Germany
[3]Medical Faculty of the Dresden, University of Technology, Medical Clinic III, Dresden, Germany

Question: The purpose of this study was to investigate the frequency and to quantify the consumption of alcohol, cigarettes and illegal substances among medical students and derive conclusions for educational trainings of medical students.

Methods: A cross-sectional study based on an anonymous written questionnaire using standardized questions was conducted with medical students of the 1st, 2nd and 3rd academic years from the Medical Faculty of the Dresden University of Technology (Saxony). The response rates ranged at 61 % (n = 298).

Results: The majority of drank alcohol weekly. The median of daily alcohol consumption (g/d) ranged between 5.02 (female students) to 13.66 (male students). χ^2-Tests confirmed a significant ($p < 0.05$) gender-related difference according hazardous and harmful drinking. The majority of medical students (78.5 %) were non-smokers. Females were significantly more non-smokers than males ($\chi^2/p < 0.05$). 66% of the students showed abstinence towards illegal substances. Significantly ($\chi^2/p < 0.001$) more male than female medical students showed one-time or repeated drug-use behaviour.

Conclusion: Alcohol as legal substance was often used among participants of this study. The distribution of current abstinence correlates well to a similar study from the University of Hannover addressing the health status in medical students from Poland and Germany [1]. More than one third showed an unhealthy alcohol-drinking behaviour. Education concerning health effects and consequences of intolerable daily maximum quantities of alcohol is further required among medical students. The number of non-smokers was over-represented compared to corresponding populations in Eastern Germany [2]. There were noticeable problems concerning the consumption of illegal substances. The number of – especially male – medical students who were experienced in the consumption of illegal substances was over-represented compared to a corresponding population (age 18-24 years, Eastern Germany) [2]. Consequently, information concerning health effects and legal consequences for further health professionals is required, particularly during the theoretical training.

References

1. Maniecka-Bryla I, Bryla M, Weinkauf A, Dierks ML. The international comparative study of the health status of medical university students in Lodz and Hanover: Przegl Lek. 2005;62 Suppl 3:63-68.
2. Burger M, Mensink G. Bundes-Gesundheitssurvey: Alkohol. Konsumverhalten in Deutschland. Beiträge zur Gesundheitsberichterstattung des Bundes. Berlin: Robert-Koch-Institut; 2003.

Session D: Mentoring (Chairmen: Schultz & Tekian)

16

Mentoring relationships: An innovative approach to finding the perfect match

Sylvère Störmann[1], Philip von der Borch[1], Konstantinos Dimitriadis[1], Felix Meinel[1], Martin Reincke[1], Martin R. Fischer[2]

[1]Klinikum der Universität München, Medizinische Klinik Innenstadt, München, Germany
[2]Private Universität Witten/Herdecke, Institut für Didaktik und Bildungsforschung im Gesundheitswesen (IDBG), Witten, Germany

Background: The success of any mentoring program builds on the quality and durability of its mentor-mentee-relationships. To achieve a high standard in mentoring relationships, the process of matching mentors to their mentees plays a key role. In developing a mentoring program for medical students we addressed the need for an innovative matching method at a faculty with a large number of mentors and mentees. In order to automate and optimize the matching process as much as possible we developed a match-making algorithm. In the evaluation of the project we assessed whether the matching procedure yields mutually satisfying mentoring relationships.

Methods: Before being able to match, each mentor and mentee is required to create an online matching profile, covering career as well as professional, social and cultural preferences. The profile consists of questions with a 6-point Likert scale, choices of medical specialty and additional qualifications, and a mandatory free text allowing the mentor or mentee to describe themselves in a more deliberate fashion. Once a mentee has completed his profile, the algorithm presents the student in search for a mentor with the ten best matches. The first five choices are mentors with a broad specialty (e.g. internal medicine) concording with the mentee's area of interest. If available, the first three matches actually match the specific specialty the mentee has selected in his profile (e.g. cardiology). The mentee can read the free texts of the proposed mentors and if inclined to, choose one as his mentor. To analyze the matching process and the resulting mentor-mentee-relationships we conducted an online evaluation at the end of the pilot semester in October 2008. The evaluation consisted of a questionnaire for mentors and mentees, respectively (n=87 for mentees and n=47 for mentors).

Results: 75.9% of mentees stated that the proposals by the matching algorithm met their expectations. While some mentees altered their profiles to get different mentor propositions, 88.6% of the students chose their mentor from the first ten proposals. 92.4% of the mentees judged the free text to be crucial for their final selection of their mentor, whereas 83.5% found the medical specialty to be the most important selection criterion. Interestingly, prior acquaintance with the mentor had an impact for 13.9% of mentees only. Importantly, 95.2% of the mentees kept their mentors over the pilot semester and 100.0% of the mentors found their mentees to be a good match.

Conclusions: We have developed an innovative and feasible method to match mentors and mentees by combining a profile-based automated algorithm with free choice for mentees. In the evaluation of the project, both mentors and mentees were highly satisfied with the selection of their partners.

17

Study orchestrations in novice medical students

Götz Fabry, Marianne Giesler

Albert-Ludwigs-Universität, Abteilung für Medizinische Psychologie, Freiburg, Germany

Background: The term "study orchestration" was introduced into the discussion on learning strategies to describe the individual study approaches students choose in response to their specific learning environment. As in music where the interaction of many instruments determine whether the sound is perceived as consonant or dissonant it's the congruence of different learning strategies with other individual aspects (e.g. motivation, epistemological beliefs, professional goals) that is crucial for successful studying. This research deals with how learner characteristics influence academic success in medical education.

Methods: Medical students (N ≈ 230) completed a questionnaire for learning strategies (LIST based on the MSLQ by Pintrich & Garcia) together with instruments to capture study motivation, epistemological beliefs, professional and personal goals and other relevant aspects at two occasions during their first year of study. To detect study orchestrations cluster analyses were conducted.

Summary of results: A five cluster solution was most appropriate for statistical and conceptual reasons. Two clusters could be assigned to surface-level and deep-level learning respectively. Further characteristic differences were found in motivation, epistemological beliefs and other variables. One cluster (N ≈ 31) might represent a "dissonant" orchestration as students appear less directed in their learning, less motivated and more uncertain than their peers.

Conclusions: In terms of supporting students to adopt effective learning approaches these results are an important starting point to develop educational interventions customised to students needs. Since dissonant study orchestrations in particular may be associated with student failure they are a primary target for student mentoring.

18

Mentoring medical students: A novel student-centered program yields promising evaluation results

Konstantinos Dimitriadis1, Philip von der Borch1, Sylvère Störmann1, Felix Meinel1, Martin Reincke1, Martin R. Fischer2

1Klinikum der Universität München, Medizinische Klinik Innenstadt, München, Germany
2Private Universität Witten/Herdecke, Institut für Didaktik und Bildungsforschung im Gesundheitswesen (IDBG), Witten, Germany

Background: Mentoring is a key factor for career success. Characteristics for the implementation of broadly accepted mentoring programs in medical education need to be clarified. We assessed the demand for mentoring among medical students at the medical faculty of LMU Munich. In response, a mentoring program based on a novel, student-centered concept was established that integrates a peer society-based model with individual mentoring by faculty members. We present this innovative mentoring concept and evaluation data on the pilot phase of the actual program.

Methods: To assess the need for mentoring, we conducted a survey among all medical students at our faculty. To further specify the concept of our mentoring program we initiated and evaluated four focus groups, two with 11 students each and two with 10 physicians each and interviews with 23 department directors. All potential mentees for individual mentoring responded to a survey on their expectations (n=505). To assess whether the program met its goals to support students' professional development, we established a 2-step evaluation of the actual program with 130 mentees in the pilot during summer semester 2008: First, mentors and mentees were asked to give feedback after every meeting (n=297, free-text questions). Second, we performed a detailed evaluation at the end of the semester. By January 2009, 1.379 students and physicians are organized in mentoring societies and 291 individual mentor-student relationships have formed.

Results: Needs assessment revealed that 83% of medical students expressed overall satisfaction with the teaching at LMU. However, only 36.5% stated to be content with how the faculty supports their professional development and 86% of students voiced a desire for more personal support. MD research thesis (56.6%) and final year electives (54.9%) were most relevant topics in need for improvement. In the pilot semester 81.0% of mentees met their mentors at least once, 28.6% twice or more. The topics primarily discussed were experiences abroad (71%) and career planning (70%). The majority of mentees stated that mentors facilitated their career planning (85.2%) and MD research thesis (79.3%) most. All mentors believe to have helped their mentees or made a difference for their mentees' careers (75%). 95.2% of mentees kept their mentors; 7.1% selected a new one. No mentee quit the program. Evaluation of peer-mentoring in societies for the preclinical years has started in October 2008. By January 2009, 1.380 students and faculty are organized in mentoring societies and 292 individual mentor-student relationships have formed.

Conclusions: Based on the results of our needs assessment we developed a novel mentoring program consisting of peer mentoring for first- and second-year students and one-to-one mentoring for students in the clinical years with a high level of acceptance in its pilot phase.

19

Student and teacher perceptions of an undergraduate voluntary pediatric private-praxis-prevention project (PePP) at Heidelberg University

Folkert Fehr1, Hans-Martin Bosse2, Sören Huwendiek2

1Gemeinschaftspraxis Kinderheilkunde und Jugendmedizin, Sinsheim, Germany
2Zentrum Kinder- und Jugendmedizin, Heidelberg, Germany

Question: How can educational opportunities meet communities requirements? In Germany most pediatricians work in private practice whereas medical education is currently carried out predominantly in tertiary care centers of Germany's universities. To ameliorate for this mismatch our program was launched. During their first two years of medical studies Heidelberg students can opt to participate in a two year pediatric family partnership project parallel to their regular predominantly theoretical studies. After assignment to a newborn in a family with at least one other healthy child they are introduced to aspects of preventional Pediatrics by home visits and appointments in the pediatric practice with their family. Thus students have opportunities to learn about the national system of well child check-ups with hands-on experience in history taking and physical examination and to practice soft skills while interacting with the families.

Methods: By means of questionnaires the students and teacher perceptions of this project were assessed. This is contrasted by data form a randomized control group of students that could not participate in the project due to resource limitations. The eight tutorial meetings with university staff within the two years project duration are analyzed.

Results: Both students and teachers highly appreciated this project. Students gained knowledge, skills and attitudes in preventive Pediatrics and teachers appreciated the interaction with the students. The project was acknowledged to be highly effective.

Conclusions: The project we present was acknowledged to be a highly effective method of teaching preventional Pediatrics and thus meets our communities requirements [1].

References

1. Emmrich P, Ogunlade V, Unger U. Demographische Untersuchung zur Vorstellung vom Arztbild und zur Studienmotivation unter Studenten der Medizin des ersten vorklinischen Semesters. Z Med Ethik. 2004;50:11-20.

20

Data collection and evaluation: does the instrument bias students' ratings of teaching quality? Some comparisons of various settings

Volkhard Fischer, Nina Seibicke, Volker Paulmann

Medizinische Hochschule Hannover, Hannover, Germany

Research question: The conducted studies aim to answer the following questions:

1. Are the results of online-evaluations biased compared to evaluations conducted in the lecture room?
2. Are courses followed by easy exams better rated than courses followed by difficult exams?
3. Is the data effected by the time of its collection (prior to vs. after the exam)?
4. Is the overall assessment of a course different from day-to-day-evaluations that were done during the course?

Method:

- Study 1 matches online-evaluations of 40 courses with the respective data of the lecture-room-evaluation.
- Study 2 compares evaluations of courses that had a high failure rate (>10%) with courses where all students passed the exam.
- Study 3 compares evaluations given prior to the exam with those given afterwards.

For the online-evaluation the program Evasys was used, while the evaluation in lecture rooms was done with the program Q-Exam. In study 1 and 2 the evaluations in the lecture rooms took place immediately after the exam. In study 3 an additional appointment was made to evaluate the course with Q-Exam prior to the oral exam. After the exam, an online-evaluation with Evasys was carried out. In study 4 the final evaluation of the course was conducted online with Evays and the single days were rated on paper.

Results: The response rate in the online-evaluation (Evasys) varied between 10 and 51%, in the lecture-room-evaluation (Q-Exam) between 60 and 97%. Apart from differences in the average rating in some courses there are no method-related means variations traceable. The number of variations is statistically not significant. Yet, there exist significant variations between courses in one term and between the same courses in different terms.

Conclusions: The conducted online-evaluations are – compared with the lecture-room based Q-Exam evaluations – not biased und representative, although the response rate is significantly lower. There are merely distribution variations in terms of the skewness of ratings.

Furthermore, the hypothesis that a difficult exam has a negative impact on the following evaluation cannot be corroborated.

Thursday: Posters

Session E: Assessment/Simulation (Chairmen: Sommerfeld & Weyrich)

21

The social side of simulation in medicine: Creating, recognizing and using learning opportunities

Peter Dieckmann[1], Susanne Molin Friis[1], Marcus Rall[2], Doris Oestergaard[1]

[1]Danish Institute for Medical Simulation (DIMS), Herlev, Denmark
[2]Center for Patient Safety and Simulation (TuPASS), Tübingen, Germany

Background: While manikin-based simulation is spreading only few studies investigate the social processes in simulation courses that allow for or hinder reaching the goals of the simulation activity.

Questions: What makes simulation-based training relevant for participants and how can simulation instructors support their learning?

Methods: Semistructured interviews and content analysis in Germany and Switzerland [1] and Denmark [2] with simulation instructors and participants [3].

Results: Simulation-based courses can be divided into different but interrelated modules for analytical purposes: setting introduction, simulator briefing, theory modules, scenario briefings, scenarios, debriefings, breaks and course endings. Problems in one module can affect other modules (e.g. unclear instructions during the scenario briefing might make it difficult for participants to understand the situation and to be open for the analysis during debriefing). The relevance that participants see in engaging in the simulation is largely influenced by the working contract between participants and instructors and only in parts by the physical characteristics of the simulator and the simulation environment. The group dynamics, clearly defined goals, time to familiarize themselves with the environment in the situation were amongst the social factors influencing the success of simulation-based training and relevant for building the simulation competence needed to effectively use this tool.

Conclusions: The interactions between those involved in simulation-based courses can allow for or hinder reaching the goals of the simulation endeavor – depending whether they stay within the agreed upon frames or leave them. Considering the social side of simulation-based learning processes helps in improving why (or why not) simulation works. Qualitative research methods help in identifying key issues in this regard.

References

1. Dieckmann P. "Ein bisschen wirkliche Echtheit simulieren": Über Simulatorsettings in der Anästhesiologie. Oldenburg: Universität Oldenburg: 2005. Zugänglich unter: http://docserver.bis.uni-oldenburg.de/publikationen/dissertation/2005/diebis05/diebis05.html.

2. Molin Friis S, Dieckmann P, Østergaard D, Lippert A. Goals, success-factors and barriers for simulation-based learning environments: A qualitative interview-study. Simulation & Gaming. SESAM 2008. Hertfordshire; University of Hertfordshire; 2008.
3. Dieckmann P, Manser T, Wehner T, Rall M. Reality and Fiction Cues in Medical Patient Simulation. An Interview study with Anesthesiologists. J Cogn Eng Decis Mak. 2007;1(2):148-168. DOI: 10.1518/155534307X232820.

22

Concept of a Longitudinal Skills Lab Curriculum

Elisabeth Kruppa, Jana Jünger, Christoph Nikendei

University of Heidelberg, Medical Hospital, Department of General Internal and Psychosomatic Medicine, Heidelberg, Germany

Introduction: Training of clinical technical competencies within medical education has gained in importance. The effectiveness of medical skills lab training has been established using a variety of assessment tools [1]. Some studies have shown that skills lab training impacts later clinical work, leading e.g. to an increase in the frequency of medical procedures performed on ward, an improvement in patient safety, and enhancement of the physician-patient relationship. Other factors strengthen the need of skills laboratories as reduced patient availability, limited faculty teaching time or greater attention to patient safety [2]. To reach an optimal outcome it is considered important to define learning goals, to use check lists for peer feedback, to support context depended learning by introducing role-play and case studies [3]. A further challenge is to be seen in developing longitudinal skills lab curricula to stimulate longitudinal skills learning in medical students.

Aim: To display the implementation of a longitudinal skills lab curriculum at the Medical Faculty at the University of Heidelberg.

Method: Work of the longitudinal skills lab curriculum team consists of stock taking, coordination and methodological development of lessons that convey clinical competencies at the Medical Faculty of Heidelberg. Furthermore the team focuses on the purchase of learning materials for training sessions, development of tutorial programs and training staff courses.

Results: The following milestones were reached since the start of the longitudinal skills lab curriculum team in summer 2007: After a stock taking of all clinical skills training at the faculty, the network of the different departments involved in skills teaching was emphasised by introducing regular meetings. The consulting service for didactical questions was used to improve existing trainings. Skills-Lab Readers with checklists for peer-feedback and training scenarios for context dependent learning were provided for the different departments at the Medical Faculty. For a variety of clinical skills we developed interdisciplinary longitudinal thematic subjects reaching from 1st term up to the final year:

- longitudinal curriculum for physical examination
- longitudinal curriculum for sonography
- longitudinal curriculum for emergency management

Conclusion: To stimulate students longitudinal learning it is considered important to coordinate different skills lab sessions at a faculty. To implement continuous learning in to the curriculum it's necessary to involve all responsible coordinators of the different departments.

References

1. Lynagh M, Burton R, Sanson-Fisher R. A systematic review of medical skills laboratory training: where to from here? Med Educ. 2007;41(9):879-887. DOI: 10.1111/j.1365-2923.2007.02821.x.
2. Scalese RJ, Obeso VT, Issenberg SB. Simulation technology for skills training and competency assessment in medical education. J Gen Intern Med. 2008;23(Suppl1):46-49. DOI: 10.1007/s11606-007-0283-4.
3. Nikendei C, Zeuch A, Dieckmann P, Roth C, Schäfer S, Völkl M, Schellberg D, Herzog W, Jünger J. Role-playing for more realistic technical skills training. Med Teach. 2005;27(2):122-126. DOI: 10.1080/01421590400019484.

23

Doc-Lab Tübingen – a longitudinal skills lab curriculum

Anne Werner[1], Bertram Schädle[2], Malte Bongers[3], Richard Schäfer[4], Stephan Zipfel[1], Burkhard Schauf[5], Peter Weyrich[6]

[1]Universitätsklinikum Tübingen, Medizinische Klinik und Poliklinik, Abteilung Innere Medizin VI, Abteilung Psychosomatische Medizin und Psychotherapie, Tübingen, Germany
[2]Universitätsklinikum Tübingen, Abteilung für Anaesthesiologie und Intensivmedizin, Tübinger Patienten-Sicherheits- und Simulations-Zentrum TüPASS, Tübingen, Germany
[3]Universitätsklinikum Tübingen, Medizinische Fakultät, Tübingen, Germany
[4]Universitätsklinikum Tübingen, Institut für Klinische und Experimentelle Transfusionsmedizin IKET, Tübingen, Germany
[5]Universitätsklinikum Tübingen, Klinik für Gynäkologie und Geburtshilfe, Tübingen, Germany
[6]Universitätsklinikum Tübingen, Medizinische Klinik und Poliklinik, Abteilung Innere Medizin IV, Abteilung Endokrinologie und Diabetologie, Angiologie, Nephrologie und Klinische Chemie, Tübingen, Germany

Context: Practical abilities are essential to keep up with good clinical standards. Skills labs provide a defined and protected learning environment for continuous training of both clinical technical and communication skills.

Question: What does Tübingen's Medical Faculty do to train its students in hands-on abilities?

Methods: A special questionnaire was created to assess the current skills lab activities of each department in order to establish a defined curriculum (Doc-Lab Tübingen). The items included ongoing teaching programs as well as planned future projects. It was assessed whether student or faculty staff instructors were responsible for teaching current training sessions and whether there was a wish to integrate more student instructors in future. Additionally, skills were assessed according to the following categories:

basic (obligatory, to be learned until end of the 3rd year), advanced (obligatory, learned within the 4th and 5th year) and elective (on a voluntary basis, chosen to deepen knowledge or orientation).

Results: A total of 188 distinct skills were named in the questionnaires obtained from 14 distinct departments, comprising 14 main categories (e.g. communication, endoscopy, injection procedures, crisis resource management, etc.). Of these skills, 76% are already taught in the current curriculum. We assigned 50% of the skills to the basic curriculum, and 25% each for the advanced and elective curriculum, respectively. Established institutions like the Tübinger Experimental-OP (http://www.experimental-op.de) or the Tübinger Patientensicherheits- und Simulationszentrum TüPass (a simulation centre for intensive care and emergency medicine; http://www.d-i-p-s.de/Tupass2008) were also integrated into the Doc-Lab concept.

50% of teaching sessions are planned to be instructed by student peers. They are trained in methodology by the Baden-Württemberg competence centre for medical didactics and receive additional training from each clinical department to acquire the relevant medical techniques.

Continuous training for central skills will be provided at the end of the Doc-Lab curriculum within simulated ward rounds or an outpatient healthcare setting to practice the main situations doctors are faced with.

Conclusions: The Faculty of Tübingen provides a broad spectrum of different skills labs. The new Doc-Lab curriculum will provide a central didactic, administrative and financial platform to optimize the curricular skills training and to offer targeted sessions to deepen the practical capabilities of our students. Different skills categories form a classical learning pyramid and the integrated Doc-Lab scenarios provided directly before the final year of medical education will facilitate the integration of final year students into the clinical ward routine and later professional life. Doc-Lab students will be able to join a currently designed web-based script and video centre that will ensure proper standardization within the Doc-Lab syllabus.

24

The role of exams in the new Model Curriculum in Human Medicine at Hannover Medical School (MHH) - Assessing quality and the quality of assessment

Volker Paulmann[1], Nina Seibicke[1], Volkhard Fischer[2]

[1]Medizinische Hochschule Hannover (MHH), Hannover, Germany
[2]paulmann.volker@mh-hannover.de, Hannover, Germany

„Assessment drives learning" – this assertion represents common sense in academia, particularly with respect to medical education where student's workload is traditionally high. In addition, one can reasonably add: „Assessment

drives quality management". Most notably, the diminution of the drop-out-rate and an identification of insufficiently qualified students are strategic objectives in higher education. Thus, teaching and assessment – as introduced at Hannover Medical School (MHH) – that is focussed on physician's essential competencies also serve this purpose. This contribution shows in how far a comprehensive analysis of assessment data serves quality management in medical education.

In 2005, a new Model Curriculum in Medicine, called HannibaL (=Hannover integrated adaptive practice-related learning concept), was established at MHH. Within the framework of HannibaL the national exam (Erster Abschnitt der Ärztlichen Prüfung) - that soonest takes place after the second academic year - was substituted by a continuous test modus. The students attend seven modularized subjects , which are terminated by an exam. Each of the exams needs to keep up with the standard of the national exam in form and content what marks the most significant difference to other medical schools. Three chances are available to pass the respective test; otherwise the student can be removed from the register. With respect to medical education, the HannibaL assessment concept offers several advantages:

- Compared with the national summative test, the method provides a better control of the learning progress. The co-existence of different forms of assessment (written, oral, practical) allows a more detailed analysis of the dimension "academic success" of the student,
- When the student fails he/she can repeat the test quickly. That means a real time benefit for the student,
- The test results provide an important feedback for the teachers. Thus, they can control the effectiveness of the teaching and a close connection of learning and testing is enabled.

The results of the last cohort that started in the academic year 2006/07 show that 68% of the students have passed all seven exams within the first two years of the curriculum. This value roughly matches the results of the MHH-cohorts which took part in the national exam before the model curriculum HannibaL was introduced: In autumn 2006, 84% of the reference group registered for the national exam, 72% of the reference group succeeded.

The focus of the contribution lies on the curriculum-related assessment at Hannover Medical School and its significance in the overall concept of Evaluation. In detail, the practical implementation as well as the validity of the results with regards to various stakeholders - the students, the teachers and the heads of administration - is discussed.

Development and validation of a checklist for assessing medical communication skills: "Frankfurter Observer Checklist Communication" (FrOCK)

Monika Sennekamp, Katja Gilbert, Corina Guethlin, Hans Michael Schaefer, Ferdinand M Gerlach

JWG-Universität Frankfurt, Institut für Allgemeinmedizin, Frankfurt am Main, Germany

Introduction: Instruction in the art of communication was explicitly included in the most recent German Medical Licensure Act and is increasingly incorporated in medical curricula for university teaching. However, general competence in medical interviewing is rarely assessed and then only on the periphery of a specific assessment of medical history taking. On the one hand, this is due to the substantial organizational efforts involved in such appraisals, and on the other because the available evaluation instruments are often not practicable and have generally not been validated.

Question: To develop a practice-oriented checklist to assess medical communication skills which could be used in practical assessments and in university teaching and to test its validity and reliability.

Method: In several steps, a group of experts developed a new checklist that is distinguished by its clear structure and limitation to fundamental aspects. The checklist was used during a simulated oral examination involving 375 students and 13 examiners. Some of these examinations were recorded on video, and 44 were subsequently assessed by four examiners on the basis of the checklist. Using all available data, from live and from video assessment, FrOCK's validity, as well as inter- and intrarater reliability, were tested.

Results: We have developed an assessment instrument which is sufficiently practicable and clear-cut to be used effectively for examination purposes. The face validity was judged as very good by the examiners. The correlation between the summary score over all items and the overall grade given by the examiners was r=-.627 with a significance of p<0.001. Detailed results will be provided at the congress.

Conclusion: The aim of developing a practice-oriented checklist for the assessment of medical interviews that can be used both for examination purposes and for teaching students, and which also fulfils the psychometric properties, was successful.

Development of an Objective Structured Clinical Examination for Medical Psychology and Medical Sociology: assessing physician-patient communication

Sabine Fischbeck, Marianne Mauch, Wilfried Laubach

Universität Mainz, Medizinische Psychologie und Medizinische Soziologie, Mainz, Germany

Medical students should be trained for an effective and patient oriented communication in typical physician-patient interactions. In Mainz best practice in those situations is been discussed and acquired on the basis of role plays in the course of Medical Psychology and Medical Sociology in the second semester. In a former study we didn't find any correlation between a written exam and practical achievement [1]. This leads us to plan a practical exam. For this objective, we aimed at developing an Objective Structured Clinical Examination OSCE for the Medical Psychology courses. Communication skills of the students should be tested with seven stations related to main topics of physician-patient communication: anamnesis, compliance, informing about high blood pressure, side effects of medical treatment, enhancing health behaviour, stress and coping, information about diagnosis in the case of cancer (each 10 minutes). Standardized actors were instructed in written and verbally for these seven role plays. The candidates will be present a short written scenario to explaining the problem they have to solve. A ten point standardized checklist was developed for each station where the examiners register the demanded interaction elements. In January and February 2009 the examination will be performed by N = 190 students. Item difficulty, discrimination and reliability of the whole test as like as determinants of the students´ competence (e. g. age, sex, points in two short written exams) will be analysed. First results will be presented and discussed.

References

1. Fischbeck S, Deister T, Schneider S. Qualifizierung Medizinstudierender zu patientenorientierter Kommunikation: Pilotprojekt zur Entwicklung und Anwendung einer Kompetenzprüfung. Z Med Psychol. 2009;18:2-12.

Pilot implementation of workplace based assessment in Switzerland: First results and challenges in postgraduate training

Anja Rogausch[1], Christoph Berendonk[1], Max Giger[2], Patrick Jucker-Kupper[1], Stephanie Montagne[1], Christoph A. Pfister[1], Reinhard Westkämper[1], Christine Beyeler[1]

[1]University of Bern, Assessment and Evaluation Unit (AAE), Institute of Medical Education, Bern, Switzerland
[2]Foederatio Medicorum Helveticorum (FMH), Kommission für Weiter- und Fortbildung (KWFB), Winterthur, Switzerland

Questions: International experiences showed that workplace based assessment (WPBA) offers helpful tools - like the Mini Clinical Evaluation Exercises (Mini-CEX) and Direct Observations of Procedural Skills (DOPS) – to improve postgraduate medical education. In order to level the way for broader implementations of Mini-CEX and DOPS in Switzerland, a feasibility study based on volunteering hospitals was conducted to answer the following questions:

1. On which conditions are Mini-CEX and DOPS feasible in clinical routine?
2. How do trainees and teachers appreciate these two tools?
3. Which barriers have to be considered?

Methods: In 13 clinics from different specialties (4 surgery, 4 internal medicine, 2 ENT, 2 gynaecology, 1 psychiatry) the staff was trained to conduct Mini-CEX and/or DOPS. The training included a workshop at each clinic; additional written instructions and assessment forms were provided. It was recommended to perform 4 Mini-CEX/DOPS per trainee/year. Frequency of assessments and satisfaction of participants were evaluated and an online-survey among participants was conducted: Physicians from pilot clinics were asked to anonymously describe barriers and possible ways to enhance feasibility of WPBA in daily clinical routine. Quantitative data were analysed descriptively, qualitative data were interpreted according to the model of inductive category development (Mayring, 2005).

Results: Ten clinics returned WPBA-forms (206 Mini-CEX, 56 DOPS). In most clinics, it took several months to effectively start the process of WPBA. The participants rated their satisfaction as follows: trainees 6.8 ± 1.8 SD for Mini-CEX, 7.9 ± 1.8 for DOPS; teachers 6.9 ± 1.7 Mini-CEX, 7.6 ± 1.4 DOPS (1 = very low, 10 = highest satisfaction). In the two clinics, which participated for longer than 12 months in the pilot project 1/3 of the trainees took part in more than 1 Mini-CEX and 4% of the trainees were assessed at least 4 times. Participants pointed to specific organisational (e.g. presence of both trainee and teacher, work overload) or personal barriers (e.g. test anxiety, role confusion) and plead for a more structured organisation of assessments.

Conclusions: Workplace based assessment was generally feasible in clinics from varying specialties. It was appreciated by participating trainees and trainers alike. To fully exhaust the positive impact on postgraduate medical education, the assessment frequency has to rise. The discrepancy between the generally high satisfaction with the format and the low number of performed assessments might be explained and resolved if the formative assessment character of WPBA is communicated more clearly. In addition, a more structured approach to organise the assessments might also facilitate the routine

conduction of Mini-CEX or DOPS in postgraduate medical education.

28

First experiences with an OSPE in dental education

Franz Michael Jakob, Katrin Brüshaver, Christina Ern, Yuri Malyk, Reinhard Hickel, Karin Christine Huth

Ludwig-Maximilians University Munich, Department of Restorative Dentistry, Periodontology & Pedodontics, Munich, Germany

The objective structured clinical/practical evaluation (OSCE/OSPE) is increasingly being used to evaluate the performance of student's skills for clinical work on a practical basis. In medical education, intensive research has documented the value of OSCE/OSPE to assess fundamental student skills. In dental education, however, only little experience exists. This may be caused by the complex structuring of relevant work steps, the definition of evaluation criteria as well as the local and temporal organization of large student numbers. Therefore, we initialized an OSPE for 3rd year students at the Dept. of Restorative Dentistry, Periodontology & Pedodontics at the University of Munich.

Question: The questions were which content could be relevant and suitable to apply OSPE within the 3rd year of dental education, which time and effort is required, which kind of difficulties may occur and how it is evaluated by the students.

Methods: The 4 different stations (á 5 min, each supervised by an assistant professor) were installed at phantom patients. Essential skills within Restorative Dentistry and Endodontics were examined (students n=55): 1st, the isolation of a lower molar with a dental dam including fixation via a clamp, dental floss ligature and a wedge. Rubber dam isolation is mandatory for endodontic treatments and most adhesive dentistry procedures. 2nd, the placement of a matrix system at a class II cavity for accurate contacts on posterior composites. The students had the choice between a sectional matrix and a Tofflemire system. Task 3 comprised the correct conditioning of enamel and dentin before a composite filling with an "etch and rinse" DBA, optional Gluma Solid Bond or Syntac Classic. Station 4 insisted the correct choice and naming of instruments for trepanation, access and instrumentation of a root canal. Each practical task was evaluated using 10 predefined criteria (passing grade were 60%). Students' feedback was obtained immediately after the examination by a questionnaire.

Results: 55 students passing the 4 stations needed 4 examiners, 1 organization assistant, 16 dental chairs with phantom heads and 4.5 h time. The 4 tasks were regarded as highly relevant for dental practice and rated good in combining the assessment of theoretical and practical knowledge. Main point of criticism by the students was the time pressure under which they had to complete the tasks.

The comprehensibility and clearity of the tasks were also rated good, except on station four (endodontics), where some participants had problems. Nevertheless, all students passed the exam and noted a fun factor.

Conclusion: This OSPE may be considered as a highly relevant form for evaluating important practical skills especially in the preclinical period of dental education. Although, it is time and staff consuming, it is a motivating diversification at examination.

29

New methods in assessing clinical reasoning: the script concordance test

Julia Hoeffe[1], Kai Sostmann[1], Floria Guthmann[1], Michel Knigge[2], Gerhard Gaedicke[1]

[1]Charité, Berlin, Germany
[2]Humboldt University, Berlin, Germany

Introduction: Clinical reasoning is a central competence of professional practice. The script concordance test (SCT) has been developed to assess examinees in their ability to use their knowledge in clinical situations. Short vignettes with typical clinical situations are presented, followed by related test items. Examinees are asked to evaluate diagnostic, investigative, or therapeutic decisions when confronted with new information. Scoring is based on comparison of examinees' results with those of a panel of experts.

Aim of this study was to develop an SCT in pediatrics' undergraduate education and to evaluate its value in this context.

Methods: Following learning objectives in pediatrics, and based on a blue print, more than 150 items were written and reviewed, and new items are written on a regular basis. 120 items are published to students to discuss in clinical pediatric training with tutors. The expert panel of our SCT consists of 30 experienced pediatricians. After one week of intensive pediatric training, students finish with a SCT of 45 questions.

Results: The test is well accepted by both students and tutors, and evaluation in general is good. It is considered neither too easy nor too difficult. Reliability in general is good (Cronbach's alpha 0,77).

Conclusion: SCT is a promising instrument to assess competence in clinical reasoning. It is designed for undergraduate as well as postgraduate assessment. Crucial for quality of the test are quality of test items and formation of expert panel [1], [2], [3].

References

1. Charlin B, Van der Vleuten C. Standardized assessment of reasoning in the context of uncertainty: The script concordance approach. Eval Health Prof. 2004;27(3):304-319. DOI: 10.1177/0163278704267043.

2. Brailovsky C, Charlin B, Beausoleil S, Coté S, Van der Vleuten C. Measurement of clinical reflective capacity early in training as a predictor of clinical reasoning performance at the end of residency. Med Educ. 2001;35(5):430-436. DOI: 10.1046/j.1365-2923.2001.00911.x.

3. Carrière B, Gagnon R, Charlin B, Downing S, Bordage G. Assessing Clinical Reasoning in Pediatric Emergency Medicine: Validity Evidence for a Script Concordance Test. Ann Emerg Med. 2008;21. [Epub ahead of print]

Session F: E-Learning/Virtual Patients (Chairmen: Fischer & Schnabel)

30

Can virtual patients be used to promote reflective practice as part of pediatric trainees' diagnostic reasoning strategies?

Bas A. de Leng[1], Rene van Gent[2], Jeroen Donkers[1], Frank Hess[3], Jörn Heid[4], Cees PM van der Vleuten[1]

[1]Maastricht University, Maastricht, Netherlands
[2]Maxima Medical Centre, Veldhoven, Netherlands
[3]Heidelberg University, Heidelberg, Germany
[4]Heilbronn University, Heilbronn, Germany

Question: Patient safety benefits from strategies to avoid cognitive errors when patients are being diagnosed [1]. Unfortunately, effective methods to teach residents to avoid cognitive errors during clinical reasoning are not readily available [2]. We developed a program in diagnostic reasoning for residents, focused on reducing cognitive errors. The program uses the strategy of 'diagnostic time-outs' [3] in a controlled educational setting, where the diagnostic team takes 'time outs' to reflect on working diagnoses.

We used virtual patients to bypass ethical, logistical and methodological problems that would arise when the 'time outs' were fitted into consultations in real clinical practice.

We wanted to test the feasibility and value of virtual patients together with the strategy of 'time outs' in small group sessions.

Methods: We used virtual patients to promote deliberate practice in groups of residents trying to solve standardized cases known to be susceptible to cognitive errors. The virtual patients were computerized problem-solving cases, allowing users to virtually explore and intervene in the cases. The cases were based on real cases where 'premature closure' had occurred, i.e. attending doctors failed to consider reasonable alternatives after reaching an initial diagnosis. The virtual patients were built in CAMPUS, a cross platform and web-based program developed at Heidelberg University, Germany.

Reflection, discussion and feedback on the data gathering and the synthesis of the information were promoted by punctuating the case workup with several 'time outs'. After a preliminary diagnosis was made based on initial examinations, a procedure to stimulate reflective diagnostic reasoning [4] was conducted during a scheduled 'time out'.

During this procedure, trainees were asked to revisit their initial inquiry and write down:

1. findings supporting their diagnosis,
2. findings contradicting their diagnosis, and
3. findings to be expected if their initial diagnosis was correct but that were not encountered.

Next, trainees were asked to generate alternative diagnoses and produce the same 3 types of findings for each of them. Finally, each trainee was asked to rank their diagnoses in order of likelihood, based on their personal analysis.

After each trainee had individually diagnosed the virtual patient, the logged differential diagnoses of all trainees were aggregated and fed back to the group by means of a specially developed feedback tool. The group discussed how the diagnoses were ranked and why, based on the trainees' recorded findings.

In April 2009, the feasibility and the value of specially designed virtual patients, the feedback tool and the 'time-outs' will be piloted in Maxima Medical Centre, Veldhoven, Netherlands.

Results and conclusions: We will present the results of observations of a clinical reasoning session, the perceptions of the instructor and the trainees, and our preliminary conclusions.

References

1. Graber ML, Franklin N, Gordon R. Diagnostic error in internal medicine. Arch Intern Med. 2005;165(13):1493-1499. DOI: 10.1001/archinte.165.13.1493.

2. Regehr G, Norman GR. Issues in cognitive psychology: Implications for professional education. Acad Med. 1996;71(9):988-1001. DOI: 10.1097/00001888-199609000-00015.

3. Trowbridge R. Twelve tips tor teaching avoidance of diagnostic errors. Med Teach. 2008;30(5):496-500. DOI: 10.1080/01421590801965137.

4. Mamede S, Schmidt HG, Penaforte JC. Effects of reflective practice on the accuracy of medical diagnoses. Med Educ. 2008;42(5):468-475. DOI: 10.1111/j.1365-2923.2008.03030.x.

31

Evaluation of curricular integration of virtual patients: Development of a student questionnaire within the electronic virtual patient (eVIP) project

Helen Rani Haider[1], Bas A. de Leng[2], Georg F. Hoffmann[3], Burkhard Tönshoff[3], Sören Huwendiek[1]

[1]*Childrens Hospital & Centre for Virtual Patients Heidelberg, Heidelberg, Germany*
[2]*University Maastricht, Department for development and research in medical education, Maastricht, Netherlands*
[3]*Childrens Hospital Heidelberg, Heidelberg, Germany*

Question: The use of virtual patients in medical education is rapidly increasing. The curricular integration of the e-learning modules is essential for their success. Numerous articles report on the use of virtual patients in different educational scenarios around the globe. To date, however, we are not aware of any published standardized evaluation instruments to evaluate the curricular integration of virtual patients. This project addresses the question of how to design a valid, standardized evaluation instrument for curricular integration of virtual patients to allow comparison and scientific analysis of different curricular integration scenarios. This project is anchored in the electronic Virtual Patient project (eViP, http://www.virtualpatients.eu), which is co-funded by the European Union.

Methods: In a literature review, valuable frameworks for designing a student questionnaire concerning the curricular integration of virtual patients were found and incorporated into our tool. By introducing the general term "corresponding teaching event" for teaching activities which go along with virtual patients, our questionnaire can be employed for all different kinds of educational scenarios using virtual patients. The questionnaire has been reviewed by the electronic Virtual Patient project partners, translated into 6 languages, pilot tested on target groups, and repeatedly revised. A preliminary study among fifth year medical students (n=50) was conducted, to evaluate the usefulness of the questionnaire for evaluation of the curricular integration of virtual patients into the Paediatrics Course at Heidelberg Medical School.

Results: This project created a multi-lingual student questionnaire to evaluate the curricular integration of virtual patients, and is adjustable to all educational scenarios employing virtual patients. The final instrument consists of 20 questions, clustered in the following 5 main categories: teaching presence, cognitive presence, social presence, learning effect, and overall judgement. In a preliminary study at Heidelberg Medical School the questionnaire proved to be very helpful in identifying strengths and weaknesses within our curricular integration of virtual patients.

Conclusion: A multi-lingual student questionnaire which allows analysis and comparison of virtual patient curricular integration scenarios is now available. We encourage medical educators around the globe to implement the tool and we would appreciate their feedback.

32

Video-based Standardised Physical Examination – An Interdisciplinary Project at Heidelberg Medical School

Anke Simon[1], Ina Weber[2], Jörg Miebach[3], Martina Kadmon[4], Sören Huwendiek[5], Thorsten Steiner[6]

[1]*Universitätsklinikum Heidelberg, Zentrum für Kinder - und Jugendmedizin, Klinik für Kinderheilkunde I, Heidelberg, Germany*
[2]*Theresienkrankenhaus Mannheim, Abt. für Kardiologie, Mannheim, Germany*
[3]*Universitätsklinikum Heidelberg, Medienzentrum, Heidelberg, Germany*
[4]*Universitätsklinikum Heidelberg, Chirurgische Klinik, Heidelberg, Germany*
[5]*Universitätsklinikum Heidelberg, Zentrum für Kinder - und Jugendmedizin, Heidelberg, Germany*
[6]*Universitätsklinikum Heidelberg, Neurologische Klinik, Heidelberg, Germany*

Introduction: The physical examination is one of the most important skills medical students have to acquire during their studies. It has been shown that students learn and apply new skills more appropriate by using and repeating one standard technique. Therefore, the Heidelberg Medical School develops an interdisciplinary project, "The Standardised Physical Examination", based on current knowledge of the clinical physical examination. Amongst others, students should be offered a video-based online tutorial in several disciplines as neurology, paediatrics, surgery and medicine which uses mainly the same standards of physical examination. The first videos were developed at the Department of Neurology and integrated into the regular neurological curriculum as online tutorial. The videos lead the practising student through single steps of the neurological examination with audio comments, drawings and concomitant texts. The neurological exam was part of the OSCE at the end of the curriculum. A pilot study was performed to evaluate the acceptance of the project by the medical students.

Methods: 73 students who participated in this study were asked about the structure, content and didactic relevance of this online tutorial based on a questionnaire using a Likert scale from 1 to 5.

Results: 75% of the students ranked the didactic relevance of this course as high = 4 (38%) or very high = 5 (37%). 62 % rated the structure of the online course as good = 4 (50%) or very good = 5 (12%), and 66% assessed the presented contents as good (47%) or very good (19%). In free text comments students expressed mainly high acceptance and some technical difficulties like audio problems.

Conclusion: In our pilot study we found a wide acceptance and positive response to the video-based standardised physical examination online tutorial. Some technical issues will be resolved and the online tutorial will be even tighter integrated into the neurology course. Currently, also videos of a standardised paediatric physical examination are in progress. We think that the video-based standardised physical examination online tutorial is a useful, complementary learning tool for fostering the internalisation of a structured physical examination throughout the medical studies, but the outcome has to be proved yet. Therefore future studies will address this issue

and e.g. investigate the influence of the online tutorial on the learner's performance in the OSCE.

33

Using Interactive Images for Embedding Applied Knowledge into Virtual Patients

Frank Hess[1], Simone Huber[1], Jörn Heid[1], Jeroen Donkers[2], Bas A. de Leng[3], Sören Huwendiek[1], Martin Haag[1]

[1]University Hospital of Heidelberg, Centre for Virtual Patients, Heidelberg, Germany
[2]Maastricht University, Department of Educational Development and Research, Maastricht, Netherlands
[3]Maastricht University, Department of Educational Development and Research, Masstricht, Netherlands

Questions: At the University of Heidelberg, virtual patients are primarily used for training clinical reasoning in higher terms using the CAMPUS virtual patient system [1]. Survey results however indicate that students demand a more consequent use of virtual patients during their whole medical study. The challenge for the creation of virtual patients for undergraduate students was to introduce clinical knowledge (patient related teaching) but also to integrate a high amount of applied knowledge. Especially the latter is not an easy task because applied knowledge from different medical areas like anatomy, biology, chemistry, histology and physiology has to be treated. So adapting virtual patients for undergraduate students has included the realisation of new features for embedding applied knowledge besides the already existing knowledge questions. One possibility to encourage student interest and to help them understand basic concepts is the inclusion of multimedia content, e.g. interactive images.

Methods: The literature related to interactive images was analysed and scenarios of the usage for various interactive image types were evaluated against the background of virtual patients. A template-based and easy-to-use animation editor was implemented to develop interactive images (see Figure 1 [1]) that were made available to undergraduate medical students. Using such interactive images can help students learning basic facts and fundamental concepts more efficiently. Actually, there are different types of interactive images available, e.g. mouse-over or drag–and-drop labelling images [2]. These interactive images are realized in Adobe Flash and can either be used stand-alone or integrated as media files in CAMPUS virtual patients. The latter has the advantage of combining pre-clinical with clinical knowledge and providing students a consistent interface to E-Learning content during their whole study. In a different scenario, the CAMPUS Animation Editor (see Figure 2 [2]) can be made available to the students to create their own interactive images and deepen their medical knowledge.

Results: Currently, selected interactive images are used within virtual patients in an undergraduate course. While working through the virtual patient the students can take part in a survey for focus group analysing. Until now, the students are presented a standardized questionnaire for virtual patients containing only general questions about the strengths and weaknesses of the virtual patients and the used virtual patient system. Individual statements by students indicate the usefulness of interactive images especially for self-study. A questionnaire concentrating on the interactive images is planned for spring 2009.

Conclusion: Interactive images are a valid tool for applied knowledge transfer. Using the CAMPUS Animation Editor interactive images can be easily developed and produced, even by the physicians or students themselves.

References

1. Haag M, Bauch M, Heid J, Martsfeld I, Leven FJ, Geiss HK, Jünger J, Tönshoff B. CAMPUS - A Flexible, Interactive System for Web-Based, Problem-Based Learning and Assessment in Medical Curricula. In: Hasman A, Mantas J (Hrsg). Textbook in Health Informatics: A Nursing Perspective (Studies in Health Technology and Informatics, Volume 65). Fairfax: IOS Press; 2002.
2. O'Byrne P, Patry, A, Carnegie J. The development of interactive online learning tools for the study of Anatomy. Med Teach. 2008;30(8):260-271. DOI: 10.1080/01421590802232818.
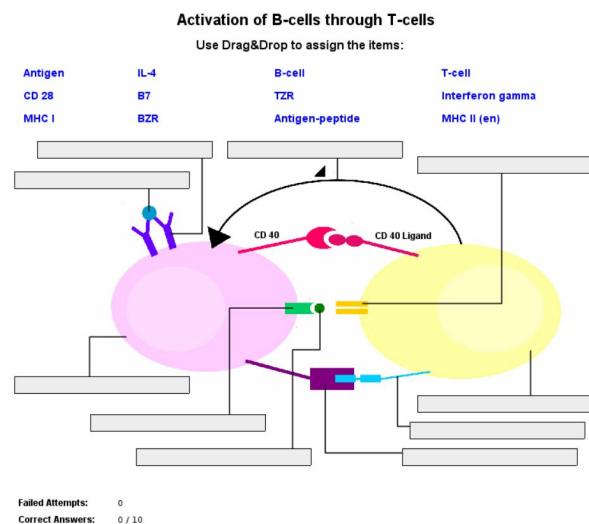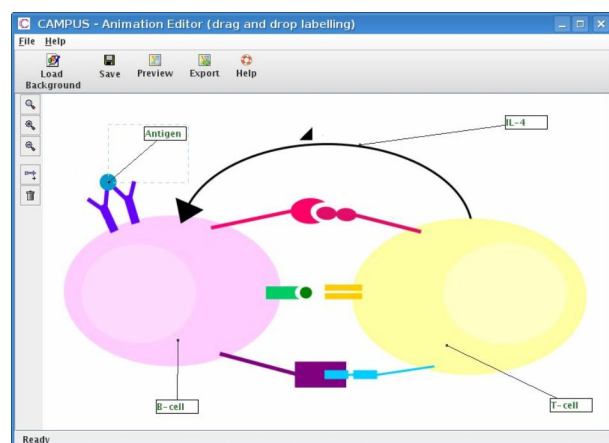

Figure 1: Activation of B-cells through T-cells

Figure 2: CAMPUS - Animation Editor

34

The Coordination Centre Homburg eLearning in Medicine – Chelm

Gregor Hohenberg[1], Christoph Igel[2], Nobert Graf[1]

[1]Universitätsklinikum des Saarlandes, Coordination Center Homburg eLearning in medicine, Homburg, Germany
[2]Universität des Saarlandes, VISU-Virtuelle Universität Saar, Saarbrücken, Germany

Background: For Universities the systematic, wide-range and sustainable use of new innovative technologies is necessary today. The potential such technologies provide build the basis for enhancing teaching and research. In this sense the Faculty of Medicine at the University of the Saarland created an IT infrastructure called CHELM to meet these requirements.

Methods: A structural plan featuring three levels was drawn up in order to establish CHELM. We differentiated between an organisational, a software oriented and a hardware oriented level. The organisation level comprises the link to all the Faculties of the University of the Saarland, realised via VISU (Virtual Saar University). This organizational level allows an integrative approach also to the Schools of the University Hospital. In the software oriented level various computer programmes are linked. The individual objects of consideration are learning applications, the communication media and the organisational IT. The hardware oriented level describes the structure of the server and the network and integrates a design concept for the computer learning rooms, a skills labs and a film studio.

Results: The Internet portal: www.chelm.uni-saarland.de acts as a vehicle for providing the following services to learners:

- systematic e-learning content
- case study based learning tools
- a feedback evaluation tool for all possible events
- an opportunity to run video conferences (virtual classroom)
- a software to apply for projects from study fees
- an access to other databases with medical e-learning content

Members of the teaching staff of the University as well as of the hospital schools are provided with access to specific software to develop new e-Learning tools.

Conclusions: The establishment of CHELM provides students and teachers an infrastructure that enhances communication between them and fosters curricula development. The implementation of a number of applications together with the integration of the Skills lab plays an increasing role in the Medical School of the University of the Saarland.

35

The Longitudinal Interdisciplinary Virtual Patient Project: Conceptual Design and Preliminary Results from the University of Heidelberg Medical Curriculum (HeiCuMed)

Stephan Oberle[1], Benjamin Hanebeck[1], Ronny Lehmann[1], Cordula Harter[2], Ralph Nawrotzki[3], Stefan Titz[4], Eginhard Koch[5], Chris Roggenhofer[6], Martina Kadmon[7], Christoph Jaschinkski[8], Navina Schäfer[9], Eva Schönit[9], Georg F. Hoffmann[10], Martin Haag[9], Burkhard Tönshoff[10], Franz Resch[5], Thorsten Steiner[11], Sören Huwendiek[1]

[1]Universitätsklinikum Heidelberg, Zentrum für virtuelle Patienten, Zentrum für Kinder- und Jugendmedizin, Heidelberg, Germany
[2]Universität Heidelberg, Biochemie-Zentrum, Heidelberg, Germany
[3]Universität Heidelberg, Institut für Anatomie und Zellbiologie, Heidelberg, Germany
[4]Universität Heidelberg, Institut für Physiologie und Pathophysiologie, Heidelberg, Germany
[5]Universitätsklinikum Heidelberg, Zentrum für Psychosoziale Medizin (ZPM), Klinik für Kinder- und Jugendpsychiatrie, Heidelberg, Germany
[6]Universitätsklinikum Heidelberg, Klinik für Psychosomatische und Allgemeine Klinische Medizin, Heidelberg, Germany
[7]Universitätsklinikum Heidelberg, Chirurgische Klinik, Heidelberg, Germany
[8]Universität Heidelberg, Student of the Studiengebührenkommission (tuition fee appropriation committee), Heidelberg, Germany
[9]Universitätsklinikum Heidelberg, Zentrum für virtuelle Patienten, Heidelberg, Germany
[10]Universitätsklinikum Heidelberg, Zentrum für Kinder- und Jugendmedizin, Heidelberg, Germany
[11]Universitätsklinikum Heidelberg, Neurologische Klinik, Heidelberg, Germany

Subject: Conceptual design and preliminary evaluation of pilot-studies within the longitudinal inter-disciplinary virtual patient project implemented into the Heidelberg University medical curriculum "Heidelberger Curriculum Medicinale" (HeiCuMed, http://www.heicumed.de).

Methods: A team of experts conceptualized the interdisciplinary virtual patient project based on appeals from fifth year medical students who experienced several paediatric virtual patients (focus group study, n=39). The goals of this project are:

1. To promote clinical reasoning via re-occurring concepts set up as a learning spiral within virtual patients (http://www.virtuelpatients.de),
2. To depict the relevance of basic science concepts using clinical examples during preclinical medical education, and
3. To foster the transfer of basic science knowledge into clinical medical education.

In 2008, the first evaluations of two pilot studies were completed. The project is financed by tuition fees.

Results: According to students, virtual patients should be used on a weekly basis in all clinical and preclinical subjects. In 2008, two existing clinical virtual patients with themes related to preclinical concepts, were selected to be repurposed and adapted for preclinical medical education. The degree of difficulty was adjusted and the virtual patients were enriched with interactive learning content related to important and fundamental basic science principles. The results of two pilot studies evaluating these virtual patients in preclinical subjects indicate a very high acceptance of virtual patients as learning tools, and attest to a successful combination of clinical and preclinical elements. According to the students' wishes, virtual

patients will be designed for three additional subjects per year, continuing until virtual patients have been implemented into all preclinical and clinical subjects. In 2009, virtual patients for anatomy, cell biology, biochemistry, physiology, pediatric and adolescent psychiatry, neurology, surgery and gynecology will be created and integrated into the medical curriculum.

Conclusion: The establishment of the longitudinal virtual patients' project is well under way at Heidelberg University, in accordance with appeals from students' request. The conceptual design and first results of the project will be presented.

Please cite as: Oberle S, Hanebeck B, Lehmann R, Harter C, Nawrotzki R, Titz S, Koch E, Roggenhofer C, Kadmon M, Jaschinkski C, Schäfer N, Schönit E, Hoffmann GF, Haag M, Tönshoff B, Resch F, Steiner T, Huwendiek S. The Longitudinal Interdisciplinary Virtual Patient Project: Conceptual Design and Preliminary Results from the University of Heidelberg Medical Curriculum (HeiCuMed). In: Research in Medical Education - Chances and Challenges 2009. Heidelberg, 20.-22.05.2009. Düsseldorf: German Medical Science GMS Publishing House; 2009. Doc09rmeF6.
DOI: 10.3205/09rme35, URN: urn:nbn:de:0183-09rme351

Freely available from:
http://www.egms.de/en/meetings/rme2009/09rme35.shtml

36

The use of virtual patients to prepare for skills lab training: results of a pilot project

Ronny Lehmann[1], Hans-Martin Bosse[2], Christoph Nikendei[3], Burkhard Tönshoff[2], Sören Huwendiek[4]

[1]Childrens Hospital Heidelberg & Centre for Virtual Patients Heidelberg, Heidelberg, Germany
[2]Childrens Hospital Heidelberg, Heidelberg, Germany
[3]Medicine Clinic Heidelberg, Heidelberg, Germany
[4]Childrens Hospital & Centre for Virtual Patients Heidelberg, Heidelberg, Germany

Introduction: The education of medical students is undergoing a change in Germany, brought about by the revision of the German physician licensing regulations in 2002. The focus is now on small group education and practical skills training. These demands bring challenges to medical educators, such as the need for numerous tutors to facilitate skills lab training. In order to most efficiently utilize the valuable skills lab training time, students must be cognitively prepared before going in. Virtual patients as interactive case simulations seem to provide ideal preparation for that.

Methods: In March 2009, the Children's University Hospital of Heidelberg, Germany, will be introducing virtual patients as mandatory preparation for skills lab training. Labs cover typical pediatric procedural skills, such as suprapubic bladder puncture, spinal tab, and cardiopulmonary resuscitation of newborns, infants and toddlers. The virtual patients are designed with the CAMPUS shell (www.campusvirtualpatients.com). Each scenario presents a short case in which students are interactively confronted with the procedure and media enhanced clarification of the practical skills. The case scenarios are designed to be under 15 minutes and utilized the day before the skills lab training. Students' and tutors' opinions will be surveyed, and the design and curricular integration of virtual patients will be evaluated using instruments developed within the electronic virtual patients (evip) project (http://www.virtualpatients.eu).

Results: Results of the pilot studies in March and April 2009 will be presented, including student and tutor perceptions of the design and the curricular integration.

Conclusions: We are currently preparing a pilot study using virtual patients as preparation for skills lab training. The pilot studies will be carried out in March and April 2009 and the results be presented.

Please cite as: Lehmann R, Bosse HM, Nikendei C, Tönshoff B, Huwendiek S. The use of virtual patients to prepare for skills lab training: results of a pilot project. In: Research in Medical Education - Chances and Challenges 2009. Heidelberg, 20.-22.05.2009. Düsseldorf: German Medical Science GMS Publishing House; 2009. Doc09rmeF7.
DOI: 10.3205/09rme36, URN: urn:nbn:de:0183-09rme361

Freely available from:
http://www.egms.de/en/meetings/rme2009/09rme36.shtml

Session G: Quality Management (Chairmen: Siebeck & Nikendei)

37

Fit for Europe. Quality assurance of education profiles in international context

Wolfgang Öchsner, Thea Rau, Katrin Thumser-Dauth
Universität Ulm, Ulm, Germany

Considering the roles defined in the CanMeds2000 project [1] and the 5-star-modell of the WHO [2] the medical faculty of the university of Ulm has developed a qualification profile («Ulmer Ausbildungsprofil» [3]) for its undergraduate students, which is divided in nine fields (teaching, professionalism, lifelong learning, interests of patient and society, medical expertise, emergency care, methodological approach and research, communication and teamwork, management). Each of the nine fields is concretized with specific learning outcomes.

Within the Bologna reform the Tuning Project [4] as well presents a list of learning outcomes for the development of competence-oriented medical study courses. Beside compiling interdisciplinary competences and transmittable general skills, expert groups defined more subject-specific competences and structured them in a two-level-model: Level 1 determines a general pattern of basic competences, level 2 specifies particular learning outcomes and concrete procedures.

Study question: Aim of our study has been to test if the qualification profile of the «Ulmer Ausbildungsprofil» fulfil the demands of the European qualification standards according to the Tuning Project.

Methods: Five independent raters (2 medical doctors, 3 curriculum developers) have been comparing the education profile of Ulm and the competence fields determined in the Tuning Project Medicine. Numbering the competences as an instrument for classification made the estimate of the raters comparable.

Results: The interrater-reliability of the comparison between the learning outcomes defined in the Tuning Project Medicine and in the education profile of Ulm was very high. The results show that both profiles are equivalent to a very high degree. Some fields of the education profile of Ulm are more differentiated

(teamwork, teaching). On the other hand the Tuning Project Medicine describes some outcomes that are not formulated directly in the education profile of Ulm: some interdisciplinary competences (e.g. multicultural competences, computer skills), the definition of precise medical procedures (e.g. taking blood) and the direct reference to European directives (e.g. the European standard for resuscitation).

In addition some differences in the intentions of both approaches appeared which even could explain some of the differences in content: The Tuning Project Medicine represents a matrix for further regional development, whereas the education profile of Ulm effectively represents already a regional and specific profile for the medical faculty of Ulm. This profile is concretized in detail in an electronic outcome catalogue.

Conclusions: The study shows that the education profile of Ulm can be seen as an example how to realize the goal of the Tuning Project Medicine. It should be discussed if it is necessary to add some of the (few) missing elements.

References

1. The Royal College of Physicians and Surgeons of Canada. CanMEDS Essential roles and key competencies of specialist physicians. Med Teach. 2000;22:549-554. DOI: 10.1080/01421590050175505.
2. Boelen C. Medical education reform: the need of global action. Acad Med. 1992;67(11):745-749. DOI: 10.1097/00001888-199211000-00007.
3. Mueller T, Eichner B, Haenle MM, Mertens T, Oechsner W, Sapper S, Waldmann UM. Das "Ulmer Ausbildungsprofil Humanmedizin" der Medizinschen Fakultät der Universität Ulm. GMS Z Med Ausbild. 2008;25(1):Doc30. Zugänglich unter: http://www.egms.de/en/journals/zma/2008-25/zma000514.shtml.
4. Cumming A, Ross M. The Tuning Project for Medicine--learning outcomes for undergraduate medical Education in Europe. Med Teach. 2007;29(7):636-641. DOI: 10.1080/01421590701721721.

38

SeMeK - The measure of medical competencies

Katrin Thumser-Dauth, Wolfgang Öchsner, Thea Rau

Medical Faculty Ulm, Ulm, Germany

Study Question: The Tuning Project Medicine defines [1] - within the context of the Bologna reform process - European minimum standards in reference to outcome goals for undergraduate medical students. The competencies defined in the education profile of Ulm (Medical Faculty of the University of Ulm, 2007) are in accordance with these standards (Rau, Öchsner, Thumser-Dauth, 2009) and with German regulations [2], considering medical expertise as well as subject-specific and interdisciplinary key qualifications. This creates a framework for curriculum development by defining what medical students should know and be able to do at the end of their studies.

Self-evaluation by questionnaires is a valid instrument for measuring competencies [3]. Aim of our study has been to develop a questionnaire measuring reliably the competencies defined in our education profile and to summarize them in empirically generated subscales.

Methods: In order to construct the questionnaire SeMeK (Selbsteinschätzung medizinischer Kompetenzen = self-assessment of medical competencies) the competencies described in the education profile of Ulm were transferred into 38 items. The questionnaire was tested with a sample of 88 students of the 9th/10th semester. After analyzing the items the questionnaire was revised and re-tested with a sample of 220 students. To arrange the subscales an analysis of the main components was carried out by Varimax rotation.

Results: Eight scales ($\lambda > 1$), all showing a high reliability ($0{,}79 < \alpha < 0{,}91$), were extracted by factor analysis. The scales can be indicated as: medical expertise, ability to provide immediate care of medical emergencies, research skills, ability to teach others, capacity to learn, ability to communicate and to work in a team, management skills, professional attitude.

Conclusions: The questionnaire can be used as a reliable instrument for measuring competencies acquired while studying medicine. The generation of eight subscales could document empirically. The recorded contents meet the standards of the Tuning Project Medicine and show the specifics of studying medicine in Germany.

References

1. Cumming A, Ross M. The Tuning Project for Medicine--learning outcomes for undergraduate medical education in Europe. Med. Teach. 2007;29(7):636-641. DOI: 10.1080/01421590701721721.
2. Öchsner W, Forster J. Approbierte Ärzte – kompetente Ärzte? Die neue Approbationsordnung für Ärzte als Grundlage für kompetenzbasierte Curricula. GMS Z Med Ausbild. 2005;22(1):Doc4. Zugänglich unter: http://www.egms.de/en/journals/zma/2005-22/zma000004.shtml.
3. Erpenbeck J. Handbuch Kompetenzmessung: erkennen, verstehen und bewerten von Kompetenzen in der betrieblichen, pädagogischen und psychologischen Praxis. Stuttgart : Schäffer-Poeschel; 2003.

39

Quality assurance in postgraduate education – development and evaluation of a guideline for instructors

Cornelia Mahler, Christiane Eicher, Thomas Ledig, Marco Roos, Joachim Szecsenyi

Universitätsklinikum Heidelberg, Abteilung Allgemeinmedizin und Versorgungsforschung, Heidelberg, Germany

Background: The department of General Practice and Health Services Research at the University Hospital Heidelberg established an event of continuing medical education in 2004, which takes place twice a year on the

hospital campus: the "Heidelberger Tag der Allgemeinmedizin" [1]. This postgraduate education program is designed to give general practitioners (GP) and their team evidence-based information on issues of everyday practice in primary care in an attractive environment free of industrial sponsoring. A wide range of varying topics are offered in interactive workshops. This enables an exchange of experience among colleagues and helps transfer theory into everyday practice. Experienced general practitioners who collaborate with the department in various projects also act as instructors/tutors of the workshops. These GPs have high medical expertise and comply with the role of an "information provider"; they have mostly not yet been aware of their "teaching role model" or their role of being a "learning facilitator" [2]. To ensure that the workshops are not solely lectures but also comprise an interactive part these GPs need to be encouraged to reflect, analyse and change their teaching activities. As varying instructors participate each time it seems to be a suitable approach to hand a teaching-guideline to the instructors in order to achieve and maintain high quality.

Question: Do the instructors of the "Tag der Allgemeinmedizin" regard a guideline for teaching helpful in preparing and conducting their workshop? Can the guideline assist quality assurance?

Methods: A guideline for instructors was developed for the 8th Heidelberger Tag der Allgemeinmedizin (April 2008) outlining some principles of learning and teaching methods. This was sent to all 44 participating instructors in January 2008 accompanied by the program. A self-administered questionnaire was handed to the instructors on the day of the event to answer the question above as well as to receive information on organisational aspects.

Results: 30 questionnaires (68.2%) were returned. 26 instructors answered the questions concerning the guideline. Nearly all of them (n=21) had read the guideline. 8 of the 14 instructors who had previously experienced didactical training regarded the guideline equally helpful as all instructors with no didactical training (n=10).

Conclusions: All in all the guideline was considered helpful by all instructors regardless of their educational experience. It was used as a possibility for personal contact not only regarding matters of organisation but also for conceptual workshop issues. A guideline seems to give important instructive assistance. At the same time it can be used for quality assurance within a department/faculty to give a clear idea which aspects are considered important and to set criteria/standards for good and effective workshops.

References

1. Szecsenyi J, Wiesemann A, Stutzke, O, Mahler C. "Tag der Allgemeinmedizin" - Ein Beitrag zur Entwicklung einer gemeinsamen regionalen Plattform zwischen Hausarztpraxen und einer Universitätsabteilung. Z Allg Med. 2006;82:449-455. DOI: 10.1055/s-2006-942191.
2. Harden RM, Crosby J. AMEE Guide No 20: The good teacher is more than a lecturer - the twelve roles of the teacher. Med Teach. 2000;22(4):334-347. DOI: 10.1080/014215900409410.

40

Personality and professionalism: Longitudinal study of emotional perception, self-assessment of clinical competence and professional identity of medical students during the training of breaking bad news in the psychosomatic course

Andrea Kuhnert[1], Ruth Pfeifer[2], Eva Schneid[2], Armin Hartmann[2], Kurt Fritzsche[2], Michael Wirsching[2]
[1]Department of Psychosomatic Medicine and Psychotherapy Freiburg, Germany
[2]Department of Psychosomatic Medicine and Psychotherapy, Freiburg, Germany

Question: Referring to the results of the Basel Consensus Statement "communicative and social competencies in medical education that estimates personality and professionalism as one of the most important competencies, the aim of this study was to investigate inter-actions of emotional perception according to professional identity and self-assessment of clinical competence in emotionally burdened situations (breaking bad news) [1].

Methods: In the winter semester of 2008/09, a longitudinal study was conducted wherein data was collected of 108 medical students (return rate 93.9%), all taking part in the one week course "Psychosomatics". An anonymous questionnaire was given at three different intervals: T1 before the training of "Breaking Bad News" with T2 immediately after, T3 after the final exam which included „Breaking Bad News"with simulated patients. In the questionnaire, the students were asked to give estimations of their professional identity, about their competence on breaking bad news, and on their current emotional state judged on 15 different items. With the use of a factorial analysis, these 15 items were summarised on three scales: "motivation", "positive emotions" and "negative emotions" (Cronbach's alpha > .70). With the use of multivariate variance analysis with repeated measures (General Linear Model, SPSS 15.0), the data and the covariate of professional identity were checked for any significant changes occurring between the test intervals.

Results: In total, we identified significantly differing groups concerning professional identity and self assessment of the competence "breaking bad news."

Group A (n=46) showed significantly higher values concerning professional identity and self assessment in "breaking bad news" before training course than group B (n= 61). In group A, training of breaking bad news with simulated patients caused highly significant irritation in personal identity even though self assessment of breaking bad news improved. Confidence in own personal identity could not be restored until the end of the course, while group B experienced continuous improvement of personal identity and self assessment of breaking bad news. However, a significant difference between the two groups concerning development of negative emotions during the course could not be found, whereas group B developed an increase of positive emotions in addition to a significant higher improvement of self-assessment in "breaking bad news".

Conclusion: The experience of self-competence in emotionally burdened situations (breaking bad news) during the psychosomatic course is individual and has consecutive effects on professional identity. Adequate self-estimation and guided experience of self competence in difficult situations seems to be a meaningful focus of medical education with regard to professionalism and personality even on undergraduate level.

References

1. Kiessling C, Dieterich A, Fabry G, Hölzer H, Langewitz W, Mühlinghaus I, Pruskil S, Scheffer S, Schubert S. Basel Consensus Statement "Communicative and Social Competencies in Medical Education": A Position Paper of the GMA Committee Communicative and Social Competencies. GMS Z Med Ausbild. 2008;25(2):Doc83. Zugänglich unter: http://www.egms.de/en/journals/zma/2008-25/zma000567.shtml.

Please cite as: Kuhnert A, Pfeifer R, Schneid E, Hartmann A, Fritzsche K, Wirsching M. Personality and professionalism: Longitudinal study of emotional perception, self-assessment of clinical competence and professional identity of medical students during the training of breaking bad news in the psychosomatic course. In: Research in Medical Education - Chances and Challenges 2009. Heidelberg, 20.-22.05.2009. Düsseldorf: German Medical Science GMS Publishing House; 2009. Doc09rmeG4.
DOI: 10.3205/09rme40, URN: urn:nbn:de:0183-09rme402

Freely available from:
http://www.egms.de/en/meetings/rme2009/09rme40.shtml

41

Student selection: Identifying a good doctor. First experiences at Hannover Medical School (MHH)

Agnieszka Dudzinska, Volkhard Fischer, Volker Paulmann, Hermann Haller

Medizinische Hochschule Hannover (MHH), Hannover, Germany

Although it is difficult to validate what makes a good doctor, it is common sense that the Abitur (German secondary school diploma) - representing the best predictor for a successful graduation of the medical curriculum - is not a sufficient criterion. As a result, universities in Germany are allowed to assess applicants by additional criteria. In 2006, the so-called *Auswahlverfahren der Hochschulen – AdH* was also applied at Hannover Medical School (MHH). The background was the introduction of a new model curriculum (*HannibaL*) that puts the accent on a patient-related education that encompasses practice and research work alike. Potential students are evaluated in terms of their appropriateness to become a good doctor. This process aims to incorporate students with a high motivation and distinct soft skills. Thus, in addition to the *Abitur* grade, applicants receive another grade from the selection procedure. Based on both grades, a weighed mean is formed that allocates a rank for each applicant and eventually regulates the access for the bulk of the students.

Next to this application form, other ways to enter academic education exist. In the evaluation of the selection method all the groups are incorporated to receive a complete picture of the of the students' performance. We differ between the following groups:

1. Students who got their place in at MHH due to their Abitur grade (ZVS-Verfahren)
2. Students who succeeded in the selection process but who would have been eligible to study at MHH if the Abitur grade was the only criteria
3. Students who succeeded in the selection process and who would have been refused to study if the Abitur grade was the only criteria
4. Students who got a place due to waiting time
5. Students who got a place a member of a special contingent (military, foreign students...)

For there are no studies on alumni yet, the measurement of academic success is still based on several dependant variables:

- The number of passed exams within a defined period of time
- The average grade in each exam
- The number of terms that are necessary to pass a certain number of exams.

Students who receive their place in the selection process are supposed to be more successful than students from the waiting time list and not worse than the students from the second group. The presentation depicts the selection modus at Hannover Medical School and discusses the results with respect to the model curriculum.

References

1. HannibaL: Hannoverscher integrierter adaptiver und berufsorientierter Lehrplan

Please cite as: Dudzinska A, Fischer V, Paulmann V, Haller H. Student selection: Identifying a good doctor. First experiences at Hannover Medical School (MHH). In: Research in Medical Education - Chances and Challenges 2009. Heidelberg, 20.-22.05.2009. Düsseldorf: German Medical Science GMS Publishing House; 2009. Doc09rmeG5.
DOI: 10.3205/09rme41, URN: urn:nbn:de:0183-09rme415

Freely available from:
http://www.egms.de/en/meetings/rme2009/09rme41.shtml

42

Core Research Competencies for Scholars and Researchers in Medical Education: An MSc and PhD Program

Claudio Violato, David Cawthorpe

University of Calgary, Calgary, Canada

Background: Medical education as a specialization area of scholarship and research is continuing to grow but there has been no systematic study of required core competencies.

Purpose: The purpose was to determine key competencies and curriculum for researchers acquiring the MSc and PhD degrees.

Methods: We reviewed documents such as calendar and web information, interviewed leaders in the field and studied peer reviewed papers, texts, and scholarly studies.

Results: There are six major areas of competencies:

1. Medical education expert,
2. Educational leader,
3. Curriculum designer,
4. Teacher,
5. Educational researcher and Scholar, and
6. Learner assessor.

We propose a graduate program to achieve these competencies for the MSc:

1. Foundations in Medical Education,
2. Research Methods and Design in Medical Education,
3. Curriculum Design,
4. Instructional Methods,
5. Medical Education Measurement, and
6. Educational Leadership and a thesis.

Three courses for the PhD:

1. Advanced Research Methods and Design in Medical Education,
2. Advanced Curriculum Design and Evaluation,
3. Advanced Measurement and Psychometrics together with Candidacy Exams and a dissertation.

In particular, the researcher at both the MSc and PhD level should have expertise in multivariate design and analysis (e.g., MANCOVA, regression, discriminant function analysis, cluster analysis, multiple comparisons, nonparametric statistics, rates and proportions, sampling, factor analyses, structural equation modeling, etc.) and psychometrics (e.g., Classical Test theory, Item Response Theory, Rasch Models, Generalizability Theory, etc).

Conclusion: Highly educated scholars and researchers in medical education at both the masters and doctoral levels should have these cores competencies. Medical education needs professionals with the specific competencies identified, specifically in multivariate design and analysis and psychometrics.

Session H: Varia (Chairmen: Bosse & Hofer)

43

Communication skills training in Psychiatry and Portraying psychiatric diseases: Are standardized patients authentic?

Martina Wündrich, Alexandra Philipsen, Julia Peters, Anne Zahn, Ulrich Voderholzer

University Medical Centre Freiburg, Department of Psychiatry and Psychotherapy, Freiburg, Germany

Question: The aim of the skills training was to help students develop communication skills applicable in difficult psychiatric situations which are also relevant to other specialties.

The aim of the study was to examine the quality of standardized patients (SPs) portraying mental-health disorders compared to real patients in a controlled study design.

Methods: For the skills training six roles were developed for SPs: suicidal patient, sexual problems in depression, incompliant patient, patient with acute panic attack, borderline-patient with self-injury, aggressive manic patient. The course was split into two parts and took part during the two weeks which third-year students spent in the psychiatric hospital. In groups of 3 or 4 they rotate through the stations. Each time one of them interviews the SP. After talking for about five minutes the student gets feedback and is then given the opportunity to repeat the interview so that he can try to improve his communication techniques immediately. In the first course there is one station where basic communication skills are repeated.

For the study 6 videos were taped of SPs and 6 of real patients (depression, schizophrenia, obsessive-compulsive disorder, borderline personality disorder). SPs and real patients were matched as closely as possible. The interview was standardized and each video took between 10 and 12 minutes. In March they will be shown to 20 blinded psychiatrists who will answer a questionnaire regarding the quality of the presentation and the suitability of these videos for teaching medical students about mental-health disorders.

Results: The evaluation by the students showed the skills training to be generally highly accepted (1,4, range 1 to 6). Very good marks were given for the authenticity of the SPs and the quality of their feedback. The repetition of the interview immediately after feedback sometimes lead to controversial discussions. If a student was able to improve his skills and see the positive influence of the feedback on the following interview the acceptance was very high. Students who had already done very well or whose skills had worsened in quality didn't see the point of this concept. In the first case some SPs started to make the interview more difficult, for example by being more aggressive as a manic patient. In the second case a good feedback and assistance by the teacher was necessary.

The results of the study are being awaited and will be presented at the congress.

Conclusion: Communication skills training in Psychiatry should be an inherent part of the curriculum. The immediate repetition of the interview can be very useful but should be examined in further studies.

The results of the video study could be of consequence regarding the acceptance of SPs in psychiatry. They may have influence on examinations such as OSCEs [1], [2], [3], [4], [5].

References

1. Bennett AJ, Arnold LM, Welge JA. Use of Standardized Patients During a Psychiatry Clerkship. Acad Psychiatry. 2006;30(3):185-190. DOI: 10.1176/appi.ap.30.3.185.
2. Hall MJ, Adamo G, McCurry L, Lacy T, Waits W, Chow J, Rawn L, Ursano RJ. Use of Standardized Patients to Enhance Psychiatry Clerkship. Acad Med. 2004;79(1):28-31. DOI: 10.1097/00001888-200401000-00008.
3. Klamen DL, Yudkowsky R. Using Standardized Patients for Formative Feedback in an Introduction to Psychotherapy Course. Acad Psychiatry 2002;26(3):168-172. DOI: 10.1176/appi.ap.26.3.168.
4. Gorter SL, Rethans JJ, Scherpbier AJ, van der Linden S, van Santen-Hoeufft MH, van Der Heijde D, Houben HH, van Der Vleuten CP. How to introduce standardized patients into outpatient clinics of specialists in rheumatology. Med Teach. 2001;23(2):138-144. DOI: 10.1080/014215931048.
5. Howley L, Szauter K,Perkowski L, Clifton M, McNaughton N; Association of Standardized Patient Educators (ASPE). Quality of standardised patient research reports in the medical education literature: review and recommendations. Med Educ. 2008;42(4):350–358. DOI: 10.1111/j.1365-2923.2007.02999.x.

44

The effect of students' communication on seriously ill patients' perception of bedside teaching

Esther Beltermann[1], Isabelle Chaix[2], Hans Gruber[1], Jan Breckwoldt[2]

[1]University of Regensburg, Institute for Educational Science, Regensburg, Germany
[2]Charité - Berlin, Campus Benjamin Franklin, Department of Anaesthesiology, Berlin, Germany

Bedside teaching is an important part of medical education and has been proven to be a proper way to develop crucial skills for students' future job [1].

In spite of its benefits, critics claim bedside teaching to be negative on patients' emotional state, especially for seriously ill patients [2]. So far, no study has proven this hypothesis. Thus, focusing on communication processes, this study aimed to examine perception of bedside teaching by seriously ill patients.

We focused on communication processes between students and seriously ill patients. It was expected that both, bad verbal and nonverbal communication manners lead to a negative perception of bedside teaching.

Nine seriously ill patients were interviewed on this matter directly after bedside teaching had taken place. Serious illness was defined as a state in which the patients were unable, or significantly impaired to care for their basic needs. Interviews were performed at the patient's bedside.

Qualitative data analysis confirmed the expectation that information, linguistic usage, etiquette, as well as facial expression and gesture that belong to verbal and nonverbal communication have an impact on patients' perception of bedside teaching. The majority of the patients stated to have perceived bedside teaching in a positive fashion when students were polite, introduced themselves, and were respectful. Besides, they liked being asked for permission before bedside teaching and examination performed by students. Furthermore they were pleased when being informed about the single steps of the ongoing examination.

Eye-contact, a friendly facial expression, and both adequate gesture and special behavior were also named as important aspects of bedside communication.

By contrast, using a high degree of medical jargon, disregarding hygienic standards and being touched by several students at the same time were described as negative aspects.

Apart from that, patients named several contextual variables that also played a role for their acceptance of bedside teaching, i.e. hospital organization, individual attitude towards both medical students and physicians, and patient based learning.

Seriously ill patients reported negative and positive perceptions of bedside teaching. In general, even seriously ill patients experienced positive teaching encounters.

References

1. Doshi M, Brown N. Whys and hows of patient-based teaching. Adv Psych Treat. 2005;11(3):223-233. DOI: 10.1192/apt.11.3.223.
2. Lowe M, Kerridge I, McPhee J, Hart C. Do patients have an obligation to participate in student teaching? Med Edu. 2008;42(3):237-241. DOI: 10.1111/j.1365-2923.2007.02948.x

45

How do students learn from lecture-slide handouts? A qualitative analysis

Wolfgang Prodinger
Innsbruck Medical University, Innsbruck, Austria

Research question: In lectures with Powerpoint-presentations (PPP) and thereafter during exam preparation, lecture-slide handouts (here termed "lechos") have become a frequently encountered learning aid. A clear understanding of how students actually learn with lechos is missing, however. A qualitative design was chosen to answer the research question of this study: how do medical students learn from lechos? Grounded theory was selected as the conceptual framework.

Methods: Focusgroup discussions (FG) with medical students were employed for data acquisition. Participants were eligible, if they ever had taken a summative, integrated end-of-year exam at the study place and gave their informed consent. Four FG with 25 students (19 women, 6 men) were run by a student colleague, taped, and transcribed by the investigator. The data were analysed with ATLAS.ti.

Results: Learning of delineated knowledge with lechos" was chosen as the core category. Several subcategories related to the core-category were defined. The availability of lechos (subcategory "Putting lechos online") was found as the causative condition for learning with lechos. In the local context, this constitutes a pivotal power issue as students depend on their lecturers in this regard. "Representing relevance (for exams)" summarizes relevant concepts of values that students hold: the primacy of lectures for knowledge transfer, the exclusive position of lechos for informally defining the syllabus in the study place, and the emphasis that comes from the teacher´s making his point in lectures. This category was particularly important in the local curriculum reform context. "Didactical knowledge" of lecturers comprises concepts of layout-skills, elocution, and the teacher´s understanding of how students go about lechos. "Better understanding in lectures" explains how memory, arousal, and motivation, ideally become activated by use of lechos in lectures.

Two learning strategies regarding exam preparation prevailed: "Using lecho as orientation guide" (e.g. for

textbook studies) and "Transforming lechos" on the way to composing individual "executive summaries". Older and younger students tended to use these strategies differently.

Conclusions: Although motivated students may have been overrepresented in the FG, the cliché of lechos as a mere substitute for attending to lectures was not apparent. Nevertheless, "Pure lecho learning" appears as a category that requires more and specific sampling.

Lechos appear to function as a hybrid of note-taking and handout under specific (powerpoint) conditions. The properties and conditions of learning with lechos described here appear as general traits, whose expression is likely to differ according to context, particularly curriculum. It will be interesting to compare the characteristic of lecho-learning in such different contexts.

46

Teaching anatomy in the 21. Century – Modern approaches to quality standards in medical education research and curricular integration

Anja Böckers, Thomas M. Böckers, Ulrich Fassnacht
Ulm University, Medical Faculty, Institute of Anatomy and Cell Biology, Ulm, Germany

A modern medical education demands a direct transfer of preclinical learning objectives and clinical practice. Anatomists habe to mediate not only the practical relevance of anatomical knowledge but also social competence as a part of medical professionalism.

The Institute of Anatomy and Cell Biology of Ulm University presents an anatomical learning concept based on a two year long and clinically orientatetd learning spiral. Learning contents are repeated but increase in complexity. According to the students level of knowledge curricular teaching units are supplemented bay extracurricular courses. Anatomical teaching objectives are related to their clinical context and students participate actively in a clincal setting. Founded bay student fees a unique Theatrum anatomicum - in the style of ancient Theatrum anatomicum - was built at Ulm University. In simulated operating settings student in their preclinical education are allowed to take part in invasive procedures performed on body donors. Clinical colleagues act like mentors and encourage students in developing their role as mdeical prefssionals. These procedures plus a surgical scrub course are imbedded in the gross anatomy courese. In addition voluntary courses like *Anatomie im Bild (AIB)* and *"Dr House revisited"* are based on this preclinical-clinical interlocking and motivate students to learn anatomical knowledge because of its clinical relevance. The presented teaching concept lead to an improved teaching climate, extraordinarily good student acceptance and better exam results. In November 2008 this teaching concept was gratified with the Landeslehrpreis of Baden-Württemberg.

47

Revision courses in Internal Medicine as a helpful tool in prearrangement of the German second part of the Examination (M2) for 6th year students. Conception and impact to the learning effect

Melanie Simon[1], Wolfram Karges[2], Sascha Al Dahouk[2], Sandra Sudmann[1], Wolfgang Dott[1]
[1]RWTH Aachen University, Deanery Medical Faculty, Aachen, Germany
[2]RWTH Aachen University, Department of Internal Medicine, Aachen, Germany

Question: In Germany sixth year of studies is the final year, during which each of the following subjects has to be studied for 16 weeks:

1. Internal medicine
2. Surgery
3. One further optional clinical discipline (e.g. Paediatrics, Obstetrics, Neurology).

After changing the regulations for approbation of German doctors this last year of studying medicine needed to be changed and reformed, too. In the past German students passed their examinations before starting into the last year. This means, that they prepared every academic knowledge ere they started with their practical year. After this year an oral examination followed, as a bedside examination of clinical aspects. So students were able to concentrate on that while working on the wards in different clinical departments.

Today, the whole examination follows after the practical year. Students need to study academic knowledge, while working in the hospital. So the last year got a lot of new aspects, which need to be kept in mind, while planning a newly and reformed curriculum for this 6th year. Question is, if revision weeks do help the student to prepare examination and if theses weeks do influence results of the examinations after the last year of studies in any way?

Methods: In Aachen the department of Internal Medicine (Prof. W. Karges) provides a revision week of Internal Medicine for last year students a few months before the examinations start. In 5 days the mean aspects of internal medicine are recapitulated by medical specialist of Internal Medicine. The issues of this week are the following ten: Cardiology, Nephrology, Pneumology, Infectious Diseases, Haematology, Angiology, Gastroenterology, Endocrinology and Metabolic Diseases. Students get a comprisal, which is written and reviewed by the specialist of the Department of Internal Medicine of the University Hospital Aachen. The Revision weeks, and the comprisals as well, are paid by the tuition fees of the students in Aachen.

Results: After carrying out this week for two times in 2008 we got a lot of feedback by the student, which took part in the revision. The evaluation of the week was very positive.

100% of the students would recommend the revision to the following years of students. From October till December of 2008 the first participants past there examination and were now asked by an online interview, how the revision week influenced their learning behaviour and the results of their examinations also. Reaction of participants is very positive. During the five days only 105 of the participant missed one up to two days.

Conclusions: Medical Faculty of RWTH Aachen University and the Department of Internal Medicine of university Hospital Aachen are going to offer the revision weeks in 2009 also. This a good instrument to support students while they prepare themselves to the examinations. Also other subjects as surgery, paediatrics and obstetrics as well now offer these revision weeks

48

Understanding problem-based learning (PBL) using a paper-case about PBL

Marco Roos, Moritz Scholten, Ruben Kuon, Thomas Ledig, Katja Götz

University of Heidelberg, Department of General Practice and Health Services Research, Heidelberg, Germany

Background: Problem-based learning (PBL) is an essential part of the medical curriculum at the University of Heidelberg. Students have to face a lot of PBL sessions during their academic studies. The Department of General Practice and Health Services Research meet the challenge to introduce PBL to all first-year medical students.

Why the idea was necessary: Even because students normally do not have any experiences in PBL at the beginning of the medical curriculum, we thought about a possibility to give students both, a theoretical and a methodological experience to get in contact with PBL.

What was done: We designed a paper case about methodological aspects of PBL that supply possible procedural and explanatory lines of discussion. The case was intended to provide a motivating and amusing subject for first PBL session. We accompanied the sessions with a pre-post questionnaire. The questionnaire consists of 5 items. Every item is rated at a 1 to 5 likert-scale. Our aim was to measure if this approach is helpful for students doing their first steps in PBL.

Discussion: We will present you the feasibility of our approach introducing PBL to first-year students. We will use our results as basis for discussion, about the usage of a paper case about PBL to give students a first experience of problem-based learning.

Friday: Short Communications

Session I: Assessment (Chairmen: Georg & Norcini)

49

Development of a new curriculum for physical examination and history taking: OSCE results after participating in the "old" vs. the "new" course

Sandy Kujumdshiev[1], Katharina Hamm[1], Falk Ochsendorf[2], Johannes Schulze[3], Thomas Otto Wagner[1]

[1]*Johann Wolfgang Goethe-University Frankfurt, Department of Internal Medicine, Frankfurt, Germany*
[2]*Johann Wolfgang Goethe-University Frankfurt, 2Department of Dermatology, Frankfurt, Germany*
[3]*Johann Wolfgang Goethe-University Frankfurt, Dean's office, Frankfurt, Germany*

Question: Do students who attended a new course (standardized curriculum, teacher training) perform better in an OSCE than students attending the traditional course? Is an additional OSCE workshop before taking the first OSCE necessary?

Our students completed a course in physical examination and history taking in their third year of medical studies. In order to improve a new curriculum, a teacher-training course and an OSCE workshop for the students were set up.

Methods: A new curriculum for an eight day course (2, 5 hrs each day) was developed. The course consists of three parts:

1. History taking and practice with standardized patients (2, 5 hrs)
2. Teaching clearly defined parts of physical examination and practice with one another (3x2, 5 hrs)
3. Practice with real patients (4x2, 5 hrs).

Prior to the course all teachers (n=14) attended a 6-hour interactive "Train-the-teacher workshop". The new curriculum, the teaching methods and information on standardized patients were presented. The teaching method for clinical skills according to Rodney Peyton was introduced. Trying to get used to the Peyton-like method working in small groups with examples of physical examination were carried out.

60 students were randomised into group A (new course with trained teachers; n=24) and group B (traditional course; n=36). Group A was further subdivided into group A1 without OSCE workshop (n=10) and group A2 with an additional OSCE workshop prior to the examination (n=14).

Results: Group A performed better in the OSCE and reached a median of 65% and group B a median of 54.05% of possible maximum points (p<0.001; 95% confidence interval of the difference 6.1-15.6). In the subgroup analysis there was no significant difference between group A1 (median of 63.5%) and group A2 (median of 65.85%; p=0.47; 95% confidence interval of the difference -10.4-5.3) in the OSCE performance.

All of the workshop participants were very satisfied with the workshop and rated it with 1.32 ± 0.46 (mean ± SD on a 6-point Likert scale, 1 = excellent, 6 = terrible) overall. Teachers rated their preparedness for teaching after our workshop with a mean value of 1.93 ± 0.47 (mean ± SD) and after carrying out the course they rated their preparedness for the course as a consequence of the workshop even better with 1.57 ± 0.57.

Conclusions: This study confirmed that a well structured course with specifically trained teachers increased the performance of the course participants in an OSCE. The study failed to show that an additional OSCE workshop can improve the results further.

Our study showed that teachers appreciate specific preparation for teaching duties and that their estimate of preparedness still increases during teaching. This study convinced our faculty to introduce this system for the whole course [1], [2].

References

1. Jünger J, Schäfer S, Roth C, Schellberg D, Friedman Ben-David M, Nikendei C. Effects of basic clinical skills training on objective structured clinical examination performance. Med Educ. 2005;39(10):1015-1020. DOI: 10.1111/j.1365-2929.2005.02266.x.
2. Peeraer G, Scherpbier AJ, Remmen R, De winter BY, Hendrickx K, van Petegem P, Weyler J, Bossaert L. Clinical skills training in a skills lab compared with skills training in internships: comparison of skills development curricula. Educ Health (Abingdon). 2007;20(3):125.

50

Learning strategies and success in examinations

Jana Jünger[1], Stefan Wagener[2], Jochen Schönemann[2], Jobst-Hendrik Schultz[1], Christoph Nikendei[3], Andreas Möltner[4]

[1]*Universitätsklinikum Heidelberg, Medizinische Klinik, Psychosomatische und Allgemeine Klinische Medizin, Heidelberg, Germany*
[2]*Medizinische Fakultät Heidelberg, Mentoren-Tutoren-Programm, Heidelberg, Germany*
[3]*Universitätsklinikum Heidelberg, Klinik für Psychosomatische und Allgemeine Medizin, Heidelberg, Germany*
[4]*Medizinische Fakultät Heidelberg, Kompetenzzentrum Prüfungen, Heidelberg, Germany*

Aim of the study: The longitudinal study investigates the extent to which a medical student's learning strategies are connected to her success in the main medical assessments taken during study semesters 2, 3 and 4 (pre-clinical studies).

Methods: A survey amongst 1st and 2nd semester medical students at the University of Heidelberg was carried out during summer semester 2006 and winter semester 2006/2007. The "Inventar zur Erfassung von Lernstrategien im Studium" (an inventory to assess learing strategies; LIST, Wild & Schiefele, 1994) was used.

Participation was voluntary. For the achieved point score in the exams (examinations each consisted of 90 A-type MC questions on the subject areas physiology, anatomy and biochemistry) correlations were identified using the 11 subscales from the LIST, a multiple regression analysis of the point scores on the subscales was also carried out.

Results: 443 students took part in the survey (74% return rate). 2nd semester exam results and the questionaires results of 250 students were available. 3rd and 4th semester written exam results and the questionaire results of 350 students were available. Correlations ($p<0.05$) between the subscales of the LIST and the points scored in the three examinations were only significant for the subscales "effort" and "attention" (lack of control over attention) (r = 0.270, 0.200 und 0.200 bzw. r=-0.221, -0.188, -0.191). Furthermore, the correlation between the subscale "elaboration" and success in the 2nd semester examination (r=-0.136) was significant as well as the subscale "critical examining" with success in the 4th semester examination (r=0.160).

A multiple regression analysis showed also an effect of "elaboration" in semesters 3 and 4, and of "critical examining" in semester 3. The variance components explained by the LIST scales of the results of the 3 examinations amounted to R2=0.166, 0.122, 0.138 respectively (corresponds to a correlation of r = 0.407, 0.349, 0.371)

Conclusion: All tested learning strategies had only a low to moderate effect on performance in examinations. "Effort" and "attention" proved to be the strongest independent predictors for success in examinations that cover a large portion of factual knowledge. This suggests that both these strategies are helpful for gaining factual knowledge. Additional learning strategies ("elaboration" and "critical examining" in particular) proved significant for students' success. Therefore it is not individual strategies that facilitate learning during pre-clinical studies, but rather a meaningful combination of several strategies.

Please cite as: Jünger J, Wagener S, Schönemann J, Schultz JH, Nikendei C, Möltner A. Learning strategies and success in examinations. In: Research in Medical Education - Chances and Challenges 2009. Heidelberg, 20.-22.05.2009. Düsseldorf: German Medical Science GMS Publishing House; 2009. Doc09rmeI2.
DOI: 10.3205/09rme50, URN: urn:nbn:de:0183-09rme500

Freely available from:
http://www.egms.de/en/meetings/rme2009/09rme50.shtml

51

Update on integrated block testing in the basic science years

David L. Wiegman, Uldis N. Streips, Ruth B. Greenberg
University of Louisville School of Medicine, Louisville, Kentucky, United States

Questions: Is block testing well received by students? Does block testing improve USMLE scores?

Introduction: At most medical schools in the USA, students master basic science concepts in disciple-based courses spread over the first two years. Individual discipline tests are given every few weeks. Students tend to cram for one test and fall behind in the other disciplines. This leads to reliance on short-term memory and little integration or long term understanding. The USMLE Step 1 is then administered at the end of two years and tests the students' integrated understanding and long term memory of the disciplines.

Methods: Six years ago we introduced integrated block testing in the 2nd year [1]. The year is divided into 6 six-week blocks. Students attend classes for the first five weeks of each block and then have a study week that ends with a six-hour comprehensive examination over all courses. Questions are provided by each discipline and the Block Exam Committee coordinates the overall construction of the block exam. The Committee reviews each question, redrafts questions, and creates integrated questions when topics are covered by two or more courses.

Results: Student scores for the individual disciplines/courses have been tracked and are basically unchanged. USMLE scores and passing rates have improved. For the 5 years before the block exams students scored 6 points below the national average (209 v 215) and passed at 4% below the national average (88 v 92). For the first 5 years of the block exams they were at the national average for both score (218) and passing rate (93%) and on occasion have exceeded the national average. Student evaluations have been very positive. For example, in response to the statement "The block exam system facilitates integrated learning" the student evaluation was 4.2 (with 1 being strongly disagree and 5 being strongly agree). For the statement "The block exam system will help me prepare for the Step 1 Board exam" the score was 4.4.

Recent modification: Our first two years contain a longitudinal 2-year Introduction to Clinical Medicine (ICM) course. To better enable our students to integrate the disciplines we have modified the block system so that the first week is ICM and then the next four weeks are the individual disciplines. This change has been well received by the students and has not affected their local discipline scores, but it is too early to know what effect it might have on USMLE scores. We have recently expanded block testing to include the 2nd semester of the 1st year.

Conclusions: The integrated block testing approach appears to be achieving our goals. Further analysis of any effect on Step 2 and 3 ULSME scores will be done. Plans to implement block testing for the 1st semester of the 1st year and to create additional integrated questions are underway.

References

1. Streips UN, Virella G, Greenberg RB, Blue A. Analysis of the Effects of Block Testing in the Medical Preclinical Curriculum. JIAMSE. 2006;16(1):10-18.

Please cite as: Wiegman DL, Streips UN, Greenberg RB. Update on integrated block testing in the basic science years. In: Research in Medical Education - Chances and Challenges 2009. Heidelberg, 20.-22.05.2009. Düsseldorf: German Medical Science GMS Publishing House; 2009. Doc09rmeI3.
DOI: 10.3205/09rme51, URN: urn:nbn:de:0183-09rme514

Freely available from:
http://www.egms.de/en/meetings/rme2009/09rme51.shtml

Influence of assessment method on objectivity and reliability in grading prosthodontic restorations in preclinical dental education

Petra Scheutzel

University Dental School, Münster, Germany

Objective: The present study aims to evaluate the degree of objectivity (examiner independence) and reliability (reproducibility) when grading prosthodontic restorations in preclinical dental education and that depending on the applied assessment method and the person of examiner. Hereby, it is of special interest whether the reliability of the assessment can be increased by using structured evaluation sheet.

Method: For this purpose fifty complete cast restorations made by students from the regular preclinical prosthodontic course were judged each by the student him/herself, a fellow student, and four dentists (two each from the preclinical and the clinical course) independently from each other. The assessment was done successively using 4 different assessment systems:

1. global assessment,
2. schematic assessment using check list,
3. analytical assessment using simply structured evaluation sheet with illustrations,
4. analytical assessment using complexly structured evaluation sheet.

Results: The use of structured evaluation sheets (especially of the simply structured one with illustrations) leads to increase in both objectivity and reproducibility of all examiner groups' evaluations and also statistically significant decrease in discrepancy between student's self-assessment and external assessment.

Reducing common prescription errors – a randomized controlled trial

Nora Celebi, Peter Weyrich, Kerstin Kirchhoff, Maria Lammerding-Koeppel

Universitätsklinik Tübingen, Tübingen, Germany

Context: Avoidable Drug related problems (DRP) cause substantial morbidity, mortality and costs. Since most prescription errors are committed by recently graduated doctors, undergraduate training should specifically address DRP.

Question: To determine whether a DRP teaching module contributes to the reduction of prescription errors.

Methology: A total of 74 fifth year medical students (25 ± 3 yrs, 24 m, 50 f) from the University of Tübingen was included in a randomized, controlled cross-over-study. Patient charts had to be completed with prescriptions before and after a specific DRP training and a control-

intervention, respectively. The prescription charts were subsequently analyzed for common prescription errors.

Results: Before the training, the students avoided 31 (±46)% of potential prescription errors. This percentage increased to 71 (±46)% after the training (p < .0001). Students with experiences from clerkships in internal medicine or former nurse educational training did not perform better in the first observation point (29 ± 45% vs. 31 ± 46%, p = .177/ 30 ± 46% vs. 35 ± 48%, p = .064).

Conclusion: Students cannot be expected to learn how to avoid common prescription errors during unstructured clinical clerkships. Prescription errors can be significantly reduced by a specific teaching module on DRP.

Session J: Communication/practical skills (Chairmen: Ochsendorf & Tekian)

Effects of Peyton-4-Step-Approach vs. Standard Instruction in Technical Skills-Lab-Training: Effects on Objective Performance Measures

Christoph Nikendei[1], Elisabeth Kruppa[1], Markus Krautter[1], Peter Weyrich[2], Sebastian Buss[1], Jobst-Hendrik Schultz[1], Jana Jünger[1]

[1]University of Heidelberg, Medical Hospital, Heidelberg, Germany
[2]University of Tübingen, Medical Hospital, Tübingen, Germany

Question: While the Peyton-4-Step-Approach is widely employed throughout clinical technical skills education, its effectiveness has barely been subject to systematic investigation. To assess effects of the Peyton-4-Step-Approach with respect to students' objective performance, we performed a randomised controlled trial, to evaluate the hypotheses that the Peyton-4-Step-Approach leads 1) to a significantly enhanced technical skills performance in a skills laboratory setting, and 2) to a significantly better patient-physician communication.

Methods: 34 volunteer third year medical students were randomly assigned to one of two groups participating in videotaped skills laboratory sessions on the topic gastric tube application using a manikin. The intervention group (IG) received skills training using the Peyton-4-Step-Approach instruction with the following steps:

1. trainer demonstrates,
2. trainer talks the learner through,
3. trainee talks the trainer through,
4. trainee does.

The control group (CG) received skills training using a standard instruction:

1. trainer demonstrates,
2. trainer talks the learner through,
3. trainee does.

Two independent video assessors scored the last step of IG and CG using binary checklists (13 yes / no items) and IPPI (Integrated Procedural Performance Instrument) rating form to evaluate technical skills performance (8 items; six-point Likert scale ranging from 1 = low competence to 6 = high competence) as well as global ratings to assess patient-physician communication (4 items; six-point Likert scale ranging from 1 = low competence to 6 = high competence).

Results: While the time needed to instruct participants did not differ between IG and CG (IG 605 ± 66 seconds vs. CG 572 ± 79 seconds; p<.195), IG was significantly faster in performing the gastric tube application (IG 187 ± 30 seconds vs. CG 242 ± 53 seconds; p<.001). IG and CG as well did not differ in binary checklist assessment (IG 88.1 ± 7.5% vs. CG 85.3 ± 11.4%; p<.400), indicating that both groups considered all important sub-steps of gastric tube application. However IG scored significantly better on IPPI rating form (IG 4.36 ± 0.58 vs. CG 3.08 ± 1.04; p<.001) and global ratings (IG 4.63 ± 0.59 vs. CG 2.48 ± 1.71; p<.001) reflecting a more fluently and professional performance and the facility to integrate patient-physician communication more easily.

Conclusion: Introducing the Peyton-4-Step-Approach into technical skills training leads to superior technical skills performance and better patient-physician communication. We conclude that the Peyton-4-Step-Approach is an indispensable method in introducing technical skills.

55

Parent-physician communication training in paediatrics using peer role-play and standardised patients in undergraduate medical education: a randomised controlled trial

Martin Nickel[1], Hans-Martin Bosse[1], Sören Huwendiek[1], Jana Jünger[2], Jobst-Hendrik Schultz[2], Christoph Nikendei[2]

[1]Universität Heidelberg, Zentrum für Kinder- und Jugendmedizin, Heidelberg, Germany
[2]Universität Heidelberg, Klinik für Psychosomatische und Allgemeine Klinische Medizin, Heidelberg, Germany

Question: Communication training involving standardised patients (SP) and peer role-play (RP) are widely employed throughout undergraduate medical education. Surprisingly, a recent review [1] revealed, that there seems to exist only one study comparing the use of SPs and RPs directly. To evaluate the hypotheses that

1. communication training with SPs is significantly better accepted than RPs and are considered to allow a better preparation for real parent-physician communication, whereas

2. both, a training with SPs and RPs leads to a comparable OSCE performance.

Methods: We conducted a randomised controlled trial in the undergraduate course of paediatrics at the Medical Faculty of Heidelberg (Germany) using SP and RP in a paediatric communication training. The communication training was based on nine parents-physician-cases in a paediatric ambulatory setting including a medical and a communicational problem each. We compared two intervention groups

1. communication training with standardised patients (IG-SP; N=30) and
2. communication training using peer role-play (IG-RP; N=28) with
3. a control group (CG; N=32) receiving no communication training.

Participating students rated how worthwhile the training was considered, realism of training situation and how students feel prepared for future parents-physician communication using a questionnaire including 10 items with Likert-scales ranging from 1=very high to 6=very low. Student's OSCE performance was evaluated accessed using Calgary Checklist ([2], 20 items, VAS 1 – 10).

Results: Communication training using SPs was considered to be significantly more worthwhile (1.50 ±.42 for IG-SP vs. 1.83 ±.36 for IG-RP; p=.003; 1=very high, 6=very low). Both, training with SPs and with RPs was perceived highly realistic (1.47±.36 for IG-SP vs. 1.40±.38 for IG-RP, n.s.; 1=highly realistic; 6=not realistic). However, participants practicing with SPs feel significantly better prepared for future real parents–physician contacts (2.00 ±.89 for IG-SP vs. 2.71 ±1.08; p=0,008; 1=well prepared; 6=not prepared). Using the Calgary Checklist IG-RS performed significantly better in the six-station-OSCE compared to IG-SP (82.20 ±3.32 for IG-RP vs. 78.66 ±6.23 for IG-SP; p=0,017), whereas both IG-SP and IG-RP performed significantly better than CG.

Conclusion: Although both SPs and RPs are highly realistic, student's acceptance for communication trainings using SPs are significantly higher compared to RPs. Objective performance measures revealed communication training using SPs or RPs increases students osce performance significantly compared to CG. We conclude SPs and RPs are both valuable methods for parent-physician communication training in undergraduate medical education. Concerning the higher cost-effectiveness of RPs educators should think of using both methods, although their students may prefer SPs.

References

1. Lane C, Rollnick S. The use of simulated patients and role-play in communication skills training: a review of the literature to August 2005. Patient Educ Couns. 2007;67(1-2):13–20. DOI: 10.1016/j.pec.2007.02.011.
2. Kurtz SM, Silverman JD. The Calgary-Cambridge Referenced Observation Guides: an aid to defining the curriculum and organizing the teaching in communication training programmes. Med Educ. 1996;30(2):83–89. DOI: 10.1111/j.1365-2923.1996.tb00724.x.

56

Validation of the "Quality of SP Feedback Instrument" – a Generalizability Study

Claudia Schlegel

Berner Bildungszentrum Pflege, Bern, Switzerland

Introduction: Students need adequate feedback about their performances to benefit from educational programmes and to improve their learning. In nursing education, Switzerland Simulated Patients (SP) are employed to train communication and procedural skills. After a Simulated Clinical Encounter (SCE) the SP directly offers oral feedback to the students. Measuring the quality of SP feedback, however, requires validated and reliable instruments. Win May from the Keck School of Medicine of the University of Southern California, Los Angeles, (USA), and Dixie Fisher from the University of Southern California, School of Medicine, Los Angeles, (USA), together developed the "Quality of Simulated Patient Feedback Form (QSF)", which assesses the immediate oral SP feedback after an encounter. With the friendly permission we could validate the QSF Instrument at our Institution.

Research questions:

The following research questions were developed:

- How good is content validity
  - as evaluated by expert judgements
- How high is reliability
  - as measured by Cronbach α, which is a measure of internal consistency.-
  - as measured by test re test (as a measure of stability)
  - by generalizability over rater, time and items

Method: Since the QSF existed in English only, forward-backward translation was completed. Content Validity: All 18 items of the QSF were deployed to 25 medical and nursing educators in German countries. The tool "Survey Monkey" was used to develop an online survey. Test/retest: To establish reliability, test / retest of QSF a generalizability analysis was conducted.

Results: Mean / standard deviation: The Cronbach α was calculated at 0.783 for the whole scale indicating high homogeneity. **Internal Consistency:** An encouraging internal consistency was obtained. In addition, 54.8% of the experts rated items as being very important.

Test retest and Interrater Reliability: To obtain a measure of generalizability, it is crucial to estimate variance components for all sources of variation, including higher order interactions. ANOVA procedures were carried out with three repeated measurement factors (SP) of time (2 levels, pre and post), CD (3 levels or 3 recorded SP encounters), and item (18 levels) gave us the following sums of squares (SS) and estimated variance components. If we wanted to generalize to a universe of raters, items, and times, the ratio of "wanted" universe score variance to observed variance is, 0.61. If, on the other hand, we regard the items as fixed, because it would be unrealistic to view the items as a random sample from a universe of many more items of SP feedback, so that we want to generalize only to a universe of raters and times, the generalizability rises to 0.88.

Conclusion: The quality of the oral SP feedback needs to be measured adequately. The QSF has been found to assess oral SP feedback in a valid and reliabel way.

References

1. Beaton DE, Bombardier C, Guillemin F, Ferraz MB. Guidelines for the process of cross-cultural adaptation of self-report measures. Spine. 2000;25(24):3186-3191. DOI: 10.1097/00007632-200012150-00014.
2. Cohen DS, Colliver JA, Marcy MS, Fried ED, Swartz MH. Psychometric properties of a standardized-patient checklist and rating-scale form to assess interpersonal and communication skills. Acad Med. 1996;71(1 Suppl):87-89. DOI: 10.1097/00001888-199601000-00052.

Please cite as: Schlegel C. Validation of the "Quality of SP Feedback Instrument" – a Generalizability Study. In: Research in Medical Education - Chances and Challenges 2009. Heidelberg, 20.-22.05.2009. Düsseldorf: German Medical Science GMS Publishing House; 2009. Doc09rmeJ3.
DOI: 10.3205/09rme56, URN: urn:nbn:de:0183-09rme562

57

Study design and first results of a randomized control trial to enhance the physician-patient relationship in inpatient care by communication training and supervision

Nadja Ringel[1], B. Buermann[1], Andreas Möltner[2], U. Riemann[3], G. Schillinger[4], Christoph Nikendei[1], Wolfgang Langewitz[5], Jobst-Hendrik Schultz[1,2], Jana Jünger[1,2]

[1]University Hospital Heidelberg, Internal Medicine II, Department of Psychososmatic and General Clinical Medicine, Heidelberg, Germany
[2]University Hospital Heidelberg, Center of Excellence for Assessment in Medicine/Baden-Württemberg, Heidelberg, Germany
[3]SLK Hospital Heillbronn, Internal Medicine I, Heilbronn, Germany
[4]AOK Bundesverband
[5]University Hospital Basel, Division Psychosomatic Medicine/Internal Medicine, Basel, Schweiz

Question: The importance of patient physician communication has been well established and there is growing acceptance in Germany to teach and assess communication skills in medical schools. However studies assessing the acceptance and effects of communication skills training for hospital physicians are still very rare and so far the reported outcomes have been heterogeneous. Nevertheless certain components have been shown to be effective, e.g. role playing, feedback and individual coaching sessions. To further investigate the effectiveness und benefits from communication skills training within the medical profession, we used this evidence to design a novel training which not only includes the state-of-the-art components, but was also adapted to especially fit the precise setting.

Regarding the physician's variables the objective of this novel training is to enhance the subjective competences, balance out empathy and to reduce burnout rates. We also want to evaluate the acceptance of the training.

Methods: 40 physicians currently working on an internal ward were randomized in an intervention and a waiting control group by matched pairs. The intervention group participated in a 3 day communication and interaction skills training including role play with standardized patients, a supervised ward round in between and an MSE

(multi station exercise) to evaluate the effect of the intervention. The training contents were tailored to the particular needs and challenges of daily hospital work using focus groups. Questionnaire data were collected from 40 hospital physicians, 200 patients (modified Picker questionnaire, SF-36, PHQ) and their consulting general practitioners (patient's adherence) at baseline and after intervention. Additionally patient physician consultations were videotaped to analyze communication skills (RIAS). The presented data will be limited to the physician self report variables: subjective competence, empathy (German version of the Jefferson Empathy scale) and burnout symptoms (Maslach Burnout Inventory) at baseline and after the intervention.

Results: The study design will be described and the initial results of the statistical evaluation regarding the acceptance of the training as well as physician self-assessment will be presented. Furthermore the challenges of a study, where all physicians working on an internal ward had to participate, are discussed.

Conclusions: The training was highly accepted by the participants and was evaluated as very helpful and useful to improve their communication- and interaction skills. Especially the ward round supervision was rated as a very good method to reflect on and improve the physician patient communication in everyday work, which allows a better transfer.

The study is assigned in ISRCTN60811508.

58

Communications Training in Continuing Medical Education - A Current Analysis of Supply and Demand in the Area Served by the North Rhine Medical Society in Germany

Thomas Rotthoff[1], Thomas Baehring[1], Dagmar M. David[2], Cora Bartnick[1], Fabian Linde[1], Robert D. Schäfer[2], Werner A. Scherbaum[1]

[1]*University Hospital Duesseldorf, Department for Endocrinology, Diabetes and Rheumatology, Duesseldorf, Germany*
[2]*North Rhine Medical Society, Duesseldorf, Germany*

Question: Communication abilities are a central component of medical practice. Much attention is devoted to this aspect in medical education. Communication should also be an important part of a physician's continuing professional development. The present analysis investigates the question of the extent to which this topic is in demand by physicians in the framework of continuing medical education (CME) and to which extent it is adequately made available in the various formats by course organisers.

Methods: The continuing medical training habits of 1,110 general practitioners, ophthalmologists, and orthopedic surgeons from the university cities of Cologne, Aachen and Bonn were studied in general and with a special emphasis on the topic of communications. For this purpose, in the period from 2002 to 2007, the participation certificates submitted to the North Rhine Medical Society (NRMS) were analysed with regard to their number, training format (category) and content. In addition, all further training events certified by the NRMS in 2007 were examined with respect to content and format.

Results: In the period from 2002 to 2007 physicians submitted a total of n = 44,891 certificates of further education. Of these, 1858 (4.1%) training events could be assigend to the topic communications. The didactic modality involved in 847 (45.6%) of the communication courses took the form of a lecture (category A) while 871 (46.9%) of the events followed an interactive concept (category C).

Of all the events submitted in 2007 for certification (n = 18,932), 388 (2.0%) included the topic communications. Furthermore, in only 95 courses (0.5%) did the topic communications account for more than 50% of the individual course content. In all, only n=10 (0,05%) courses with the main topic communications were provided in the fields of internal medicine, general medicine and pediatrics. Among the offered CME formats, those of category C (59.2%) dominated, followed by category A (27.3%).

Conclusion: The subject communications is only represented to a minor extent within the framework of continuing medical education. In light of the effects of good communications between physician and patient on compliance and therapeutic success, and thus also on patient safety, more CME events on this topic should be promoted within the concept of continuing professional development. Also, in the development of new educational courses, those with interactive teaching concepts should be provided in increasing numbers and the respective events should be scientifically evaluated by accompanying teaching/learning research.

Session K: E-Learning/Simulation (Chairmen: Huwendiek & de Leng)

59

Repurposing virtual patients for clinical reasoning: Development of a guideline and assessment of time and effort

Benjamin Hanebeck[1], Martin Haag[2], Georg F. Hoffmann[1], Burkhard Tönshoff[1], Sören Huwendiek[1]

[1]Medical Faculty of Heidelberg University, Department of General Paediatrics, University Hospital for Paediatric and Adolescent Medicine and Center for Virtual Patients, Heidelberg, Germany
[2]University of Applied Sciences Heilbronn, Faculty for Informatics, Heilbronn, Germany

Introduction: Fostering clinical reasoning is considered to be one of the major learning goals in medical education. However, there is only limited access to real patients to learn clinical reasoning. This deficiency can be overcome by providing virtual patients as an adjunct to real patient encounters. Research has been carried out on design features for virtual patients, especially to improve clinical diagnostic reasoning skills. However, developing new virtual patient cases from scratch is costly, making it reasonable to repurpose existing cases. Efforts to apply these to already existing virtual patients are, as yet, unreported, but are considered to be considerably lower than creation of new cases.

Methods: We established a guideline for repurposing virtual patients for fostering clinical reasoning, which was developed from the literature and from our own experiences in repurposing 15 virtual patients. Furthermore, we documented the associated effort in terms of work hours.

Results: The established guideline for repurposing virtual patients for clinical reasoning includes the following six major steps:

1. Case selection and initial check;
2. Literature review;
3. Development of a repurposing concept;
4. Enrichment for fostering clinical reasoning;
5. Reduction of cognitive load;
6. Final checks including review by expert and completion.

The six steps are described in detail. The associated time and effort were calculated on average by 33 hours per case.

Conclusion: We describe a guideline for repurposing virtual patients for clinical reasoning and its associated time and effort. We hope that others planning to repurpose virtual patients for clinical reasoning find this guideline helpful.

60

Case-based learning with worked examples fosters medical students` diagnostic competence: Results replicated

Veronika Kopp[1], Robin Stark[2], Martin R. Fischer[1]
[1]Private University Witten/Herdecke, Witten, Germany
[2]Saarland University, Saarbrücken, Germany

Background and questions: To foster medical students' diagnostic competence a case-based worked-example approach was implemented in the context of a computer-based learning environment. A worked-example consists of a problem, several solution steps, and the final solution (correct diagnosis). In order to test the effectiveness of erroneous examples and elaborated feedback in this context, both factors were varied experimentally. In the domain of hypertension, the combination of erroneous examples and elaborated feedback worked best, whereas combining erroneous examples with knowledge of result (KOR)-feedback impaired learning [1]. In this study, we tested whether these effects can be replicated when more complex examples in the domain of hyperthyroidism were used. Additionally, effects on students' acceptance and subjective learning outcomes were investigated.

Methods: A computer-based learning environment dealing with symptoms of hyperthyroidism was conceptualized. It consisted primarily of six worked examples representing relevant patient cases and detailed steps of diagnostic reasoning. A total of 124 medical students were randomly assigned to the four conditions of a 2x2-factor design (with errors vs. without errors; elaborated feedback vs. KOR-feedback). Diagnostic competence was assessed by a multiple choice test which was also used to record prior knowledge, operationalizing conceptual knowledge, by key feature problems operationalizing strategic knowledge, and by specific problem-solving tasks operationalizing strategic and teleological knowledge. Acceptance and subjective learning outcomes were assessed by two questionnaire scales. Time-on-task was registered automatically. After a short introduction, students completed the prior knowledge test, worked through the learning session and finally worked on the post-tests and the questionnaire.

Results: Prior knowledge and time-on-task were controlled statistically. Results show that conceptual, strategic and teleological knowledge were fostered by elaborated feedback. Additionally, an interaction effect occurred with regards to strategic knowledge. The combination of erroneous examples and elaborated feedback was the most effective learning condition, whereas erroneous examples with KOR-feedback impaired knowledge acquisition, at least for strategic and teleological knowledge. These results replicate the key findings of the first study.

Concerning acceptance and subjective learning outcomes, the mean scores were rather high in all groups. Students in conditions with elaborated feedback assessed their learning outcome significantly higher than students receiving only KOR-feedback.

Conclusions: By providing erroneous examples in combination with elaborated feedback in a computer-based learning environment, diagnostic competence was fostered economically. The successful approach "learning by worked examples" can be adapted to complex domains and the acquisition of complex competencies.

References

1. Kopp V, Stark R, Fischer MR. Fostering diagnostic knowledge through computer-supported, case-based worked examples: Effects of erroneous examples and feedback. Med Educ. 2008;42(8):823-829. DOI: 10.1111/j.1365-2923.2008.03122.x.

Please cite as: Kopp V, Stark R, Fischer MR. Case-based learning with worked examples fosters medical students` diagnostic competence: Results replicated. In: Research in Medical Education - Chances and Challenges 2009. Heidelberg, 20.-22.05.2009. Düsseldorf: German Medical Science GMS Publishing House; 2009. Doc09rmeK2.
DOI: 10.3205/09rme60, URN: urn:nbn:de:0183-09rme608

Freely available from:
http://www.egms.de/en/meetings/rme2009/09rme60.shtml

61

Curricular integration principles for virtual patients: a focus group study among students

Cecilia Brasch[1,2], Friedrich Reichert[1,2], Benjamin Hanebeck[1,2], Hans-Martin Bosse[3], Bas A. de Leng[4], Cees PM van der Vleuten[4], Martin Haag[5], Georg F. Hoffmann[3], Burkhard Tönshoff[3], Sören Huwendiek[1,2]

[1]*University Hospital for Paediatric and Adolscent Medicine, Departmet of General Paediatrics, Heidelberg, Germany*
[2]*Medical Faculty of Heidelberg Universtiy, Centre for Virtual Patients, Heidelberg, Germany*
[3]*Medical Faculty of Heidelberg University, Department of General Paediatrics, University Hospital for Paediatric and Adolescent Medicine, Heidelberg, Germany*
[4]*Maastricht University, Department of Educational Development and Research, Maastricht, Netherlands*
[5]*Medical Faculty of Heidelberg University,Centre for Virtual Patients, Heidelberg, Germany*

Purpose: To examine students' views on the ideal curricular integration of virtual patients (VPs) to foster learning.

Methods: 120 fourth year medical students worked on at least eight VPs in six different blended learning scenarios. The integration scenarios differed concerning sequence, tutor guidance, small group work, and patient involvement. Nine groups of 4-9 randomly selected students (n=39) participated in focus-group discussions facilitated by a moderator using a questioning route. The interviews were videotaped, transcribed and analysed. Summary reports were approved by the students.

Results: VPs should be integrated in curricula according to the following 11 principles:

1. It should be possible to work on VPs flexibly;
2. VP work and corresponding teaching events should be soundly adapted to each other (blended learning);
3. The connection of VP work and corresponding teaching events should be explicitly stressed;
4. Lectures or seminars should take place before working with VPs;
5. Ideally, VP work should be followed by meeting a real patient;
6. Small group wrap-up-sessions after working with VPs should be offered, especially in complex cases;
7. Wrap-up sessions concerning two VPs with the same leading symptom but different diagnoses should be considered;
8. Tutors of wrap-up sessions should be well informed about the VPs and well trained in facilitating small groups;
9. Optimal single scenario: (i) Lecture, (ii) VP, (iii) wrap-up-session, (iv) real patient;
10. VPs should be relevant for the exam;
11. VPs should be offered throughout the medical curriculum in all preclinical and clinical subjects.

Conclusion: Students perceived the described curricular integration principles of VPs as highly relevant for their learning. Future studies will address the effects of these principles in quantitative controlled designs.

Please cite as: Brasch C, Reichert F, Hanebeck B, Bosse HM, de Leng BA, van der Vleuten CP, Haag M, Hoffmann GF, Tönshoff B, Huwendiek S. Curricular integration principles for virtual patients: a focus group study among students. In: Research in Medical Education - Chances and Challenges 2009. Heidelberg, 20.-22.05.2009. Düsseldorf: German Medical Science GMS Publishing House; 2009. Doc09rmeK3.
DOI: 10.3205/09rme61, URN: urn:nbn:de:0183-09rme613

Freely available from:
http://www.egms.de/en/meetings/rme2009/09rme61.shtml

62

Preparing for written assessments with podcasts: An effective addition or alternative to face-to-face-lectures?

Thomas Brendel[1], Matthias Holzer[1], Mona Bartl[1], Martin R. Fischer[2]

[1]*Klinikum der Universität München, Medizinische Klinik - Innenstadt, Munich, Germany*
[2]*Private Universität Witten/Herdecke, Institut für Didaktik und Bildungsforschung im Gesundheitswesen (IDBG), Witten, Germany*

Background and question: The podcast-technology allows for the provision of lectures with full audiovisual information via the web. However, their role as a substitute for or add-on to face-to-face-teaching in medical education is not clear yet. How do students actually use and accept podcasts in addition to lectures? Does the use of podcasts alone versus attending face-to-face-lectures versus the combination of both lead to differences in written summative examination-scores?

Methods: All 240 third-year medical students at the medical faculty of Ludwig-Maximilians-University Munich were included in this study in the summer-term 2008 (April – August). 52 lectures of 90 minutes each (4 per week) in internal medicine were held face-to-face. In addition 25 of these lectures were provided as podcasts via a password-protected website. Each podcast was produced as a combination of video-sequences of the lecturer and all additional media information. Podcasts were accessible a few days after the actual lecture until the end of the semester. Students were free to attend the face-to-face-lectures, download the podcasts or use both opportunities to prepare for their exams. The lecture-attendances and the usage of podcasts of each student were documented in detail. We assessed the acceptance of podcasts via three questionaires throughout the semester. The written summative examination consisted of 70 questions (60 multiple choice and 10 free text questions, 1 point per test item). Each question was based on the content of one of the 52 lectures. Half of the questions referred to lectures that were also available as podcasts. We compared the aggregated performance for all questions of this half in relation to lecture attendance and podcast use.

Results: The use of podcasts increased from 32% in the first to 70% in the second half of the semester. No technical difficulties with respect to access and usability were expressed. Students were satisfied with audiovisual quality. The mean performance per question for all test

items prepared for by attendance of face-to-face-lectures only (n=2354) was .809 (SD .377) compared to .827 (SD .351) for those test items prepared for by use of podcasts only (n=1470). The combination of both preparations (n=971) led to a significant improvement (p<0.01) of performance (mean .852, SD .332).

Conclusions: Podcasts were well accepted and used by the majority of third-year medical students. Learning with podcasts seems to be at least as effective as attending face-to-face lectures with respect to written examination-scores. Using podcasts in addition to face-to-face lectures seems to be advantageous. Further analysis of the data will focus on the correlation of examination-scores and learning-behaviour of individual students.

63

Learning with Simulations – Teaching the Rectal Exam with Standardised Patients

Matthias Siebeck[1], Bärbel Schwald[1], Claudia Frey[1], Stefanie Röding[1], Karsten Stegmann[1], Frank Fischer[2]

[1]LMU, Surgery, Munich, Germany
[2]LMU, Psychology, Munich, Germany

Undergraduate medical curricula are often deficient in teaching physical examinations in taboo zones, particularly the rectal exam. Here, students' inhibition is assumed to hamper the performance of the rectal exam in daily practice as well as the learning process. Simulation-based learning has proven effective to teach the physical exam. Complexity of simulations can be variable, depending on whether a part task (PT) or the whole task (WT) is simulated.

In 2 studies we have addressed 2 research questions:

1. does the complexity of the simulations (PT vs. WT) affect inhibition and acquisition of procedural knowledge?
2. does the sequence of the simulation (WT-PT vs. PT-WT) affect inhibition and acquisition of procedural knowledge?

The study populations consisted of 41 (study 1) and 188 (study 2) female and male undergraduate medical students. Each student participated in two sessions (1 PT and 1 WT), the order of which was randomised. For the PT we used a mannequin, for the WT standardised patients trained to give feedback.

In both studies we found that the complexity of the simulation had a strong positive effect on the reduction of inhibition: The reduction of inhibition was significantly stronger after the WT than after the PT. Both types of simulations facilitated acquisition of knowledge.

Our results show that simulations of different complexity are capable of facilitating both acquisition of knowledge and affective variables such as the reduction of inhibition.

Session L: Knowledge Development (Chairmen: Lischka & Eva)

64

An innovative model for final year students' structured supervision on ward: A quantitative and qualitative descriptive study

Markus Krautter[1], Nadja Köhl-Hackert[2], Matthias Eden[3], Jana Jünger[4], Christoph Nikendei[4]

[1]University of Heidelberg Medical Hospital, Department of Nephrology, Heidelberg, Germany
[2]University of Heidelberg Medical Hospital, Department of General Internal and Psychosomatic Medicine, Heidelberg, Germany
[3]University of Heidelberg, Medical Hospital, Department of Cardiology, Angiology, Pneumology, Heidelberg, Germany
[4]University of Heidelberg, Medical Hospital, Department of General Internal and Psychosomatic Medicine, Heidelberg, Germany

Introduction: The final year of medical education is considered to be especially important in that it aims to aid the transition between students' college years and their future professional career and is crucial in making them "fit for purpose". During this period of time final year students should completely be integrated into ward-teams and ward procedures in order to improve their proficiency in independent patient management. Clerkships are generally seen as a very favourable learning environment for final year students. As on-ward supervision has proven to be rare, we introduced an innovative model for final year student's structured supervision directly on ward with physicians serving as final year student supervisors that are not identical with the current ward doctor.

Aim: Evaluation of an innovative model of final year student supervision on ward.

Method: 16 final year students received continuous teaching and supervision on ward through final year student supervisor during first eight weeks of their stay. Learning goals included patient's history taking, physical examination, ward rounds and chart documentation, patient presentation, DRG coding and writing medical reports. Acceptability was measured with self-administered surveys pre / post intervention and a focus group analyses.

Results: The final year student on ward supervision program was considered to be useful by (Mean 1.25 ± SA 0.44) and to improve clinical and commicative skills (2.10 ± 1.40). A pre/post analysis showed significant improvement in patient history taking (p<.0.005) and in parts of physical examination (p<.0.05). It was considered to be a helpful teaching model to prepare for independent patient management and future profession.

Conclusions: A final year student on ward supervision program is a feasible, useful and well accepted tool in final

year medical education that assures supervision and conveys independent patient management.

65

Rater bias in an OSCE

Andreas Möltner[1], Jobst-Hendrik Schultz[2], Jana Jünger[2]

[1]Medizinische Fakultät Heidelberg, Kompetenzzentrum Prüfungen, Heidelberg, Germany
[2]Universitätsklinikum Heidelberg, Medizinische Klinik, Psychosomatische und Allgemeine Klinische Medizin, Heidelberg, Germany

Aim of the study: The influence of examiners ("rater bias") is a serious threat to the objectivity of assessments, e. g. in oral exams. The purposes of this study were to analyze different types of rater effects in an OSCE in internal medicine at the University of Heidelberg, to establish a standard procedure for controlling rater effects and to investigate their influence on the reliability of the OSCE. We considered three types of rater effects: Differences of mean scores, differences in variation of scores and differences of discriminative power between examiners.

Methods: The OSCE "Internal Medicine" consisted of 12 stations. The examinations were carried out in 6 sessions on two days. 139 students participated in the examination. A total of 39 examiners took part, nine of them on both days, the others only on one day. Students were assigned randomly to the different sessions. To prove the existence of the mentioned rater effects, we compared the score distributions obtained at parallel stations and correlations of scores with corrected total scores between different examiners (Kruskal-Wallis-test for location, Fligner-Killeen-test for dispersion and asymptotic Fisher-z for rank correlation). A generalizability analysis was used to estimate the influence of rater effects on the reliability of the OSCE.

Results: All of the three rater effects could be verified in the OSCE examination. We found significant differences of mean scores and of variances of scores between examiners at 9 respectively 5 of the 12 OSCE stations. Significant differences of correlations with corrected total scores (discriminative power of raters) could be shown at 4 stations. However, the influence on the reliability of the examination was only moderate (dependability coefficient $\Phi = 0.825$, estimated dependability without rater effects $\Phi_c = 0.853$).

Conclusion: To ensure the quality of an OSCE, all types of rater bias have to be controlled, so statistical analyses of examinations are always necessary (classical test theory alone is not sufficient). Appropriate measures have to be taken to ensure the quality of the assessment, e. g. improvements of station materials and specific examiner trainings. Nevertheless, an OSCE with a sufficient number of stations may be a reliable and robust examination even in the case of singular strong rater effects [1].

References

1. Hoyt WT. Rater bias in psychological research: when is it a problem and what can we do about it? Psychol Methods. 2000;5(1):64-86. DOI: 10.1037/1082-989X.5.1.64.

66

Development of knowledge in basic medical sciences - a comparison of a traditional medical curriculum and a problem based medical curriculum at Charité - Universitätsmedizin Berlin

Katrin Schüttpelz-Brauns, Zineb Miriam Nouns, Waltraud Georg

Assessment-Bereich Charité - Universitätsmedizin Berlin, Berlin, Germany

Introduction: Traditional and problem-based medical curricula in Germany follow a very different aproach to teaching,learning and assessing. Especially in the basic medical sciences as anatomy, physiology, biochemistry and psychology medical students face very oppositional courses. Traditional students are presented with a systematic elaboration of the basic sciences in lectures and in practical tutorials. They finish the studies of the basic medical sciences after two years with a high stake national exam (Physikum). Problem-based cirricula students are presented with "real" medical cases or problems from the first day of their studies. In small groups they have to agree on what knowledge they need to solve the presented problems and then they are given time to study and develop the knowledge needed. They continue learning the basic sciences throughout the whole five years course and do not have to pass the Physikum.

At Charité both approaches are maintained for the last ten years as two medical curricula - a traditional and a problem-based exist in parallel. They might have little in common but since 2003 all students from both curricula have to sit a Progress Test at the beginning of each semester. Therefore the development of the student´s medical knowledge in all subjects and organ-systems taught during the both courses can be illustrated for all cohorts after 2003.

Aim and method: This studie´s aim was to illustrated this knowledge development on a longitudinal base focussing on the basic medical sciences. The Progress Test data of 10 cohorts (5 years) incl. more than 4000 Tests of traditional and 2000 Tests of problem-based students were cumulated. For each semester t-tests and effect sizes were calculated.

Results: Significant difference in knowlegde of basic medical sciences for the two courses could not be found during the first two years of medical studies, even though the traditional students attend up to five times more hours of theaching. Only after the Physikum the traditional students take a clear lead in basic sciences knowedge. At the end of five years of medical studies both curricula are almost on the same knowledge level.

Discussion: The development of medical student´s knowledge can be illustrated with a formative assessment tool like a Progress Test and raise questions like:

- Which level of knowledge do we wish our graduates to have?
- What does induce knowledge: teaching or assessing?
- How should knowlegde develop during medical training?[1]

References

1. Nouns ZM, Brauns K. Das Prinzip des Progress-Testing. In: Dany S, Szczyrba B, Wildt J (Hrsg). Prüfungen auf die Agenda! Hochschuldidaktische Perspektiven auf Reformen im Prüfungswesen – Reihe Blickpunkt Hochschuldidaktik Band 118. Bielefeld: Bertelsmann; 2008. S.114-128.

67

Badmouthing - Responsibility of medical teachers as role model

Iris Natanzon, Marco Roos, Joachim Szecsenyi, Stefanie Joos

University of Heidelberg, Department of General Practice and Health Services Research,Heidelberg, Germany

Background: There is a decline in relative numbers of general practitioners in Germany. An analysis of conflicts in general practitioners self-perception of their professional role and social self-image has potential for identifying barriers in the recruitment of new general practitioners.

Objective: To analyse potential discrepancies between general practitioners self-perception of their professional role and their social self-image, framed as being how general practitioners perceive specialists see them.

Methods: A qualitative study was undertaken by interviewing 16 general practitioners in their general practice or in the Department of General Practice and Health Service Research, University Hospital of Heidelberg, Germany.

Results: The interviews showed a discrepancy between general practitioners' own professional self-perception and how they perceive they are viewed by specialists. General practitioners communicate a positive self-perception of their professional role. While general practitioners' social self-image is perceived as being positive by specialists in outpatient care, it is negative for specialists working in hospitals. Additionally, general practitioners suppose that specialists, who work at the university or in hospitals, tend to transfer a negative opinion about general practitioners.

Discussion: General practitioners' self-perception of their professional role doesn't correspond to their social self-image in Germany. Hospital specialist's perceived negative opinion about general practitioners could influence students' and medical trainees' opinion about joining the general practice profession, which could act as a barrier in recruiting new general practitioners. The outcome

"badmouthing" in hospitals and universities demonstrates the importance of the consideration of psychological aspects in medical teachers act as role model. We will discuss if these aspects should be more integrated in future medical education research.

68

The demise of 'the firm' and the impact on apprenticeship style learning in the UK context

Anja Timm, Faith Hill

University of Southampton, School of Medicine, Southampton, United Kingdom

'The firm' is ubiquitous within clinical teaching in the UK context – it is the key mechanism and organisational unit for apprenticeship style learning for undergraduate medical students and junior doctors. Despite its centrality within medical education, it has rarely attracted sociological scrutiny. Medical staff, in particular, tend to take 'the firm' for granted, for they themselves have undergone training within it. The term and its usage, however, effectively hide historical, speciality and local variations of 'the firm' and mask the way in which the concept and its real life organisational practices have changed over time [1].

Within the medical education literature, clinical attachments have received relatively little scrutiny [2]. Bleakley attributes this to the prevalence of "the psychological model of pedagogy that focuses upon transmission of knowledge and skills from one individual to another" ([2], p.9). Social scientist have sought to highlight the social and contextual dimensions of learning [3] and the importance of informal and implicit aspects of the 'hidden curriculum' that are oftentimes more powerful than the 'manifest' or official curriculum [4], [5].

What is important to note is that the apprenticeship model does not solely or primarily depend on explicit instruction. Rather, knowledge is (also) transmitted through informal learning that relies on time spent together (context, shared language and experiences, observation, implicit rather than direct communication) and the formation of relationships of trust (that allows for mutual dependability and support) which in turn facilitate – or hinder – the transmission of how things are done in a particular set up [6]. The hierarchical nature of the firm is also likely to have given rise to some forms of exploitation. As noted above, the nature of 'the firm' remains under-researched – historically and in its current (and relatively recent) form.

Through various changes in the NHS and the phased introduction of the European Working Time Directive medical firm structures are currently in flux and some argue that they have become eroded [7]. Medical schools and deaneries (in charge of postgraduate training) throughout the UK are struggling to identify ways to address these changes, especially in terms of the firm's educational function.

The presentation is based on interview data with clinical teachers who have trained and worked in firm structures

throughout their careers. Our analysis of this data will seek to define what 'the firm' was in the context of different specialties and it traces its development (or demise). Without an appreciation of how 'the firm' operated in terms of benefits and disadvantages to the various stakeholders and how it developed over time – as a work unit and as site and mechanism for teaching / training – any account of current changes will be severely limited, as will attempts to design new ways of working and teaching to make up for its dissolution.

References

1. Moss F, McNicol M. Alternative models of organisation are needed. BMJ. 1995;310(6984):925-928
2. Bleakley A. Pre-registration house officers and ward-based learning: a 'new apprenticeship' model. Med Educ. 2002;36(1):9-15. DOI: 10.1046/j.1365-2923.2002.01128.x.
3. Hafferty FW. Into the valley: death and the socialization of medical students. New Haven: Yale University Press; 1991.
4. Becker H, Geer B, Hughes EC, Strauss A. Boys in white: student culture in medical school. Chicago: University of Chicago Press; 1961.
5. Sinclair S. Making Doctors: An Institutional Apprenticeship. Oxford, New York: Berg; 1997.
6. Lave J, Wenger E. Situated Learning: Legitimate Peripheral Participation. Cambridge: Cambridge University Press; 1991.
7. Tooke J. Aspiring to excellence: Final Report of the Independent Inquiry into Modernising Medical Careers. London: MMC Inquiry; 2008. Zugänglich unter: http://www.mmcinquiry.org.uk/Final_8_Jan_08_MMC_all.pdf.

Author index

(referring to abstract numbers)